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COMPUTERWORLD

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Network confusers

Sun, Microsoft enter crowded field

By April Jacobs

Will the real network computer please stand up?

That's what users are asking now that Sun Microsystems, Inc. and Oracle Corp. have entered the network computer market with competing products designed to cut the cost of PC ownership.

Reacting to the threat, PC chip and operating system leaders Intel Corp. and Microsoft Corp., along with PC hardware kingpin Compaq Computer Corp., announced their

Sun, Microsoft, *page 16*

British Telecom's Terry Carlin *says he hopes network computers cut PC costs*

Oracle show to highlight its NC

By Craig Stedman

Network computers. Desktop applets. Web-oriented development tools. Object buses. Oh, and some database stuff, too.

That will be the order of priority at this week's Oracle OpenWorld conference in San Francisco.

Secure for now in its database dominance, Oracle Corp. is using the event to debut technologies that will play key roles in its expanding

Oracle, *page 15*

Taking on Microsoft

Oracle will announce these and other products at this week's Oracle OpenWorld

Product	Key features	Availability
Network Computer	Pentium-based thin clients	Mid-1997
HatTrick	Java-based word processor, spreadsheet and presentation graphics	Q1 1997 as part of InterOffice 4.1 groupware
WebServer 2.1	Interoperates with Netscape and Microsoft Web servers	Now

Low bandwidth could threaten intranet plans

By Bob Wallace

If you're thinking about layering an intranet onto your corporate data network, you had better make sure you have the necessary network bandwidth, security tools and management skills.

Intranet fever is spreading like wildfire, but pioneering information systems managers are finding that creating an intranet is a gargantuan task that strains IS staffs and the infrastructure they

Intranet plans, *page 155*

BRIAN SPROUSE

Xerox's Bob Monastero *says it took three years to devise an equitable salary review system for teams*

Pay inequities sap team spirit

By Julia King

Corporate America loves teams, but most companies haven't yet figured out how to pay people for working well with others.

The problem for information systems departments and others is how to isolate the performance of a particular team member. Both stellar and lackluster work may be hidden in team settings, according to a study by The Hay Group, a management consulting firm in Philadelphia.

As a result, workers are increasingly dissatisfied, and team-based productivity is on the wane. This is especially true at companies where teams have been in place for two years or longer.

Teams, *page 155*

Newspaper

Win 95/NT users demand answers

By Laura DiDio and April Jacobs
LONG BEACH, CALIF.

Migration issues

Users hoping for a quick fix for the incompatibility between Microsoft Corp.'s Windows 95 and Windows NT applications won't get any relief until sometime next year.

Some 16-bit Windows 95 applications won't run on 32-bit Windows NT until next year's release of Windows NT 5.0, Microsoft Chairman and CEO Bill Gates said at a Site Builder's Conference last week in San Jose, Calif.

Attendees at this week's Microsoft Professional Developer's Conference said they

Win 95/NT, *page 155*

INTERNET INSECURITY

Users such as Tribune Co.'s Jeff Scherb fear sabotage and distrust vendors — but that doesn't keep them from doing business online.

IN DEPTH, page 121

MARC BRYSON

Up Front

Letter to Mom

Dear Mom,

Remember how we were talking a few weeks ago, and I suggested you get a PC with an America Online connection so you could cruise the horticulture forums?

Bad idea, Mom. Let me tell you a story.

A few days after we talked, Lori called me at work. (She sends her love, by the way). Seems she couldn't save any of her Word documents. So I find she's got something called the Concept macro virus. It's like when I used to get the flu.

So I get this little program off the Internet and spend about two hours getting rid of the virus. Thought I was in the clear. Then the next day, the PC can't see the CD-ROM drive. (They call it read-only memory, but it's really a disk. Don't ask me why). So I try to send an E-mail to the support line, and the modem isn't working. (A modem turns digits into sounds and then back to digits. Don't ask). Finally I figure out I've got *another* virus.

So I go to CompUSA and buy an antivirus program (it costs $60 and makes your PC do what it's supposed to do already) and go home and install it. Turns out, I've got a *lot* of viruses, Mom. We're talking digital petri dish here.

Since some of them are boot-sector viruses — you don't start a computer, Mom, you boot it — the software can't fix them all. So I have to reinstall Windows 95. Then I have to rebuild my desktop. That kitchen remodeling is simple by comparison.

Then my screen is showing only 16 colors because it turns out I've got two display drivers installed. That is what they call plug-and-play. That took me a few days to unravel.

The funny thing is, Mom, a lot of people in the computer industry are disappointed that only 35% of American homes have PCs. They want to get that to 60%. If you ask me, they should be happy they've gotten this far.

Forget about the PC, Mom. I wouldn't want to inflict the pain on you. Not to mention Dad.

Paul Gillin, Editor
Internet: paul_gillin@cw.com

The 5th Wave by Rich Tennant

"We pulled from several outside services to build our C/S architecture - Microsoft, Andersen Consulting, the UN peacekeeping forces..."

Apple chief fuels OS confusion

By Lisa Picarille

Apple Computer, Inc. was put on the defensive last week when informal comments by CEO Gilbert F. Amelio were interpreted to mean that Apple will abandon the Mac OS in 1998 in favor of a completely new operating system.

Apple officials claimed that Amelio's comments were taken out of context and that the CEO was simply talking generally about the future of operating systems.

"He was simply making general statements about what an operating system in 1998 should have," said Russell Brady, a spokesman for the Cupertino, Calif.-based computer maker. "We are not abandoning the Mac OS and remain committed to the PowerPC platform."

Brady said Apple plans to unveil its operating systems strategy early next year.

In the meantime, faithful Macintosh users seeking any good news to cling to in the wake of declining market share have been left to draw their own conclusions.

"You hear a lot of things about Apple, [such as] they are going to buy the BEOS to replace the Mac OS. Then you hear that's not true. Then there are rumors that, going forward, a new Mac OS will not be backward-compatible. Then someone else says that's not true," said an IS manager at a West Coast aerospace company, who requested anonymity.

"It's hard to figure out what is true, and Apple isn't saying much about future strategy. So you just cling to what you hear and pray that it will all work out," the IS manager said.

Taking a bite

Third-quarter figures from Dataquest in San Jose, Calif., show Apple's share of the overall PC market is 5.4%, down 27.5% from the 8.7% market share Apple had in the same period last year.

Copland troubles

Industry watchers said Apple's trouble getting its message out is more than a lack of communication. After three years of development and delays, Apple finally pulled the plug on the multiprocessing, multithreading, microkernel architecture of Copland, which was pegged as the next-generation Macintosh operating system.

Instead, the company announced at Macworld Expo in August that Copland — Mac OS 8 — wouldn't be released as planned and instead Copland features would be delivered in incremental releases every six months.

"Apple's problem is that it hasn't been able to deliver on its promises," said Tom Rhinelander, an analyst at Forrester Research, Inc. in Cambridge, Mass.

"They keep promising the world and missing. Apple has set its sights on creating a more robust operating system, but that is now more than a year away. In the meantime, market share continues to slip, and unit shipments for the last quarter are down. Users are not going to wait forever, and right now [Apple] can't afford to alienate users," he said.

News Shorts

Oracle, Netscape in deal

Oracle Corp. and **Netscape Communications Corp.** have signed a deal to bundle Netscape's Navigator browser with Pentium-based network computers that Oracle plans to ship in the first half of next year. Oracle said its own PowerBrowser software will be embedded in the company's InterOffice groupware suite.

AOL adopts flat pricing

America Online, Inc. last week announced a flat rate of $19.95 per month for unlimited access to its service. The Dulles, Va., company has had high customer turnover partly because its basic rate of $9.95 per month for five hours of access prompted complaints from heavy users.

AT&T wins contract

United HealthCare Corp. has entered a long-term outsourcing contract with **AT&T Corp.** that analysts said could be worth as much as $800 million. AT&T will deploy advanced call-center technologies and build and operate the Minnetonka, Minn.-based health care provider's communications platform, including voice mail, voice response and more than 100 private branch exchange systems.

Boost for BackOffice

Microsoft Corp. has bought its way in to the online analytical processing market by acquiring multidimensional database technology from **Panorama Software Systems** in Israel. Microsoft plans to add the Panorama technology to its BackOffice suite of server software.

Lotus broadcasts point

Lotus Development Corp. and **PointCast, Inc.** have teamed up to offer intranet broadcasting services to corporate users. Called Lotus Domino.Broadcast for PointCast, the product combines Lotus' Domino server, Domino.Action Web site creation software and PointCast's I-Server. The offering is due early next year. Pricing wasn't announced.

Tandem does Web

Tandem Computers, Inc. last week unveiled a new line of Windows NT-based servers and a new direction toward Internet transaction processing. The products will ship in stages over the next year [CW, Oct. 21].

Microsoft aims at ATM

In a move designed to boost use of Asynchronous Transfer Mode (ATM) technology in corporate networks, **Microsoft** last week said it will include key ATM-enabling software in future versions of its Windows operating system products.

SHORT TAKES **Microsoft**'s Exchange Server E-mail system has been approved by the Department of Defense for use as a Defense Messaging System. ... **Unisys Corp.**'s Federal Systems division has been awarded the networking equipment portion of a $200 million NASA contract. ... **Apple Computer, Inc.** is slashing prices by as much as 30% on most of its Power Macintosh computers. ... **Citicorp** has appointed Stanley M. Welland as director of global technology infrastructure.

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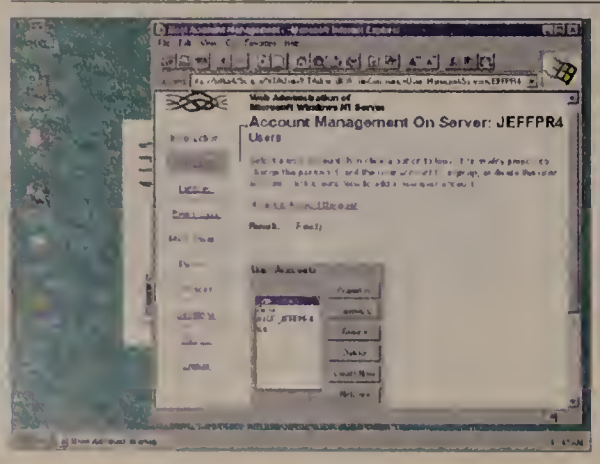

Buyer's Guide

Stage set for NT?

Novell's NetWare still holds its own in customer satisfaction, but Microsoft's Windows NT casts its shadow over the network operating system market.

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Class act

ACE-certified courses offered by Learning Tree International

Course	Time to complete	College credit
Introduction to Client/Server Computing	4 days	2 credits
Computer Network Architectures and Protocols	4 days	2 credits
NetWare 3.x Administration	3 days	1 credit

IS can save big on college tuition

By Julia King

Trying to stretch your training budget? A little-known program allows information systems workers to earn college credit for technical classes that cost much less than college courses.

The program can save millions of dollars in college tuition reimbursement costs and gives workers new skills in a short time. The catch is that the training must be certified under the American Council on Education's (ACE) Program on Non-Collegiate Sponsored Instruction to earn college credits.

Training

The Washington-based ACE last week added 22 computer training classes from Productivity Point International in Hinsdale, Ill., to its growing list of qualified courses.

Other computer training companies that offer ACE-certified courses are ExecuTrain Corp., Learning Tree International and Command-Train, Inc.

"In the past two years, we've seen a flurry of activity in the computer area," said Jo Ann Robinson, deputy director of the ACE program.

In addition, several dozen companies from all industries have won ACE certification for in-house courses that cover topics such as communication skills and strategic planning.

The certification "saves the student a bundle of time and us a bundle of money," said Bob Elkins, manager of training performance improvement at Union Pacific Corp. in Omaha. "We're looking at between $3,000 and $3,600 per person in savings per semester that we would have spent on tuition reimbursement."

Meanwhile, employees earn an average of two college credits for a short course in LANs or Unix that would take a semester to complete in a university classroom.

"The IS folks [working toward a technical degree] see this as a godsend because it enables them to skip past electives and focus on the programming stuff," Elkins said.

IS workers who complete non-IS training in, say, financial planning, also earn college credits.

At Dana University, the training arm of $7 billion Dana Corp., an automotive parts manufacturer in Toledo, Ohio, an IS employee can earn three college credits for completing a 3½-day finance course.

As the company migrates to Microsoft Corp.'s Windows 95 and Office software, end users also will earn one college credit for every two days of software training, which Dana has outsourced to Productivity Point.

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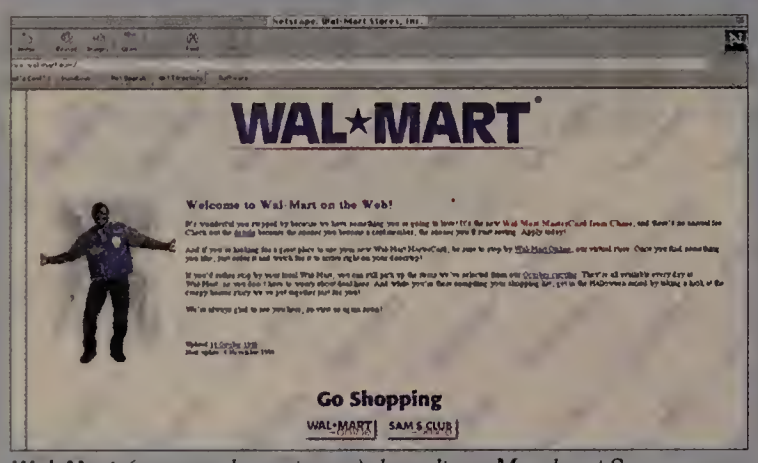

Wal-Mart *(www.wal-mart.com) doesn't use Merchant Server*

Wal-Mart asks for a return

Conspicuously absent from Microsoft's Merchant Server announcement last week was Wal-Mart Stores, Inc.

Earlier this year, Microsoft and Wal-Mart executives held a flashy press conference to announce they would work together to develop technology for online commerce.

Since then, the two firms have gone their separate ways.

Why? Because Microsoft wasn't moving fast enough, said Phil Martz, director of Wal-Mart Online. Wal-Mart wanted to put up its World Wide Web site faster than Microsoft could get its Merchant Server ready. The Wal-Mart site went live this summer. Martz said Wal-Mart will evaluate Merchant Server for future purchase. But there is a major obstacle: Merchant Server lacks tools to import data and applications from a pre-existing site, and Wal-Mart doesn't want to lose the work it has already done.

Wal-Mart's goal was to ensure that user-interface standards were developed so visitors in different stores would have similar means of browsing and arranging payment. Martz said the vendors and users writing online sales software seem to be moving in that direction.

— Mitch Wagner

Microsoft woos webmasters with online mall software

By Mitch Wagner
SAN JOSE, CALIF.

Just in time for holiday shopping, Microsoft Corp. last week announced the immediate availability of its Merchant Server software package for setting up Internet storefronts.

The product lets companies build online stores with displays of merchandise, including photos and multimedia clips.

It automates payment processing and shipping arrangements, and provides links to back-office databases and systems.

"The product area that Merchant Server is involved in today is very small, but we believe it will see explosive growth," said Microsoft Chairman and CEO Bill Gates. Microsoft expects the number of consumers on the Internet to grow from 15 million today to 48 million by 2000.

Small-company support

Merchant Server has won early support from users; there are about 40 companies hosting sites with the software. Most of the companies are small, but some of the larger participating retailers include Tower Records and the boutique chain Crabtree & Evelyn Canada.

Virgin Entertainment Group in Los Angeles is evaluating the product as a possible foundation for an online Virgin Superstore, which is expected to sell CD-ROMs, videos and other media next year.

Virgin webmaster Brian Regan called Merchant Server "a phenomenal piece of software. . . . It's far superior to anything out there." Regan praised the database connectivity, the user interface for designing sites and the components for automatically computing sales tax.

He also expressed enthusiasm for components that let webmasters set up special promotions — for instance, buy-one-get-one-free offers — and tailor them to certain visitors, based on profiles filled out at registration.

But Microsoft faces stiff competition. Netscape Communications Corp. has its own Merchant System. IBM earlier this fall announced a line of merchant servers and an online mall, World Avenue, which is due to open this year. Oracle Corp. last month announced Apollo, its merchant server. Apollo is due next year.

Plenty of smaller companies also offer merchant systems. They include Open Market, Inc., ICat Corp., BroadVision, Inc. and Evergreen Internet, Inc. And many companies are custom-building their online stores in-house or with consultants.

Price points

At its press conference, Microsoft touted the low price of Merchant Server as a virtue.

But David Strom, an independent analyst in Port Washington, N.Y., questioned that claim.

He said the $18,000 cost of the software license isn't cheap and doesn't include a Windows NT software license or server hardware.

"It's going to run you $20 grand. That's a lot of money. This is hardly Filene's Basement," Strom said.

The ICat server from Seattle-based ICat offers similar functionality but costs about $1,500.

Netscape, Microsoft shift attention to back-end Web software. See page 67.

Vendors announce more competition for Visual Basic

By Sharon Gaudin

IBM and Oracle Corp. are taking aim at the lucrative and growing Visual Basic market with Basic programming tools of their own.

In separate announcements last week, IBM added the Basic language to its Visual Age family, and Oracle enhanced its Oracle Power Objects development tool.

But Microsoft Corp. isn't standing around waiting for someone to take away its market share. The company has made several announcements that position its upcoming Visual Basic 5.0 toward the Internet.

Programming tools

"Oh, people definitely want a piece of that market," said David Kelly, an analyst at Hurwitz Group, Inc. in Newton, Mass.

"IBM and Oracle see that Microsoft is fulfilling an important need in corporations, and they're trying to capture some of that market," Kelly said.

IBM is trying to lure Visual Basic developers by giving them the ability to write Basic applications for the server, as well as for multiple platforms.

Visual Basic is limited to the Windows platform.

Late to the party?

But the efforts of IBM and Oracle may be too little, too late, said Bill Fisher, president of Summit Software Co., a Syracuse, N.Y.-based development company that uses Visual Basic.

"Microsoft has already built the industry-standard Basic tool. The technology in Visual 5.0 is just heads and shoulders above what IBM can create by itself or what Oracle can create by licensing a third party," Fisher said.

Fisher said Visual Basic 5.0 also will let developers write server applications.

And Fisher said he doesn't care about platforms other than Windows.

Jean-Pierre Cabanie, computer support manager at Philips Microwave Limeil, a division of the French Research Laboratory in France, disagreed.

"On server platforms, Visual Age for Basic gives us an option to move our database server to a more powerful platform," said Cabanie, who uses IBM's new software to access information on his database server.

Visual Age for Basic supports OS/2, Windows NT and IBM AIX 6000 servers.

It supports OS/2, Windows 95 and Windows NT on the client side.

Tools allow for Web site integration

By Mitch Wagner
and Kim S. Nash
SAN JOSE, CALIF.

Microsoft Corp. last week announced a set of tools designed to allow IS managers and business managers to work together on building sophisticated commerce sites on the World Wide Web.

The company unveiled Internet Studio, a graphical tool that developers can use to integrate text formatted in Hypertext Markup Language (HTML), database connections and programs written in Microsoft's Visual Basic, Perl and other common programming languages.

Microsoft also unveiled FrontPage 97, a tool that will allow business managers and consumers to graphically integrate HTML-formatted text, graphics and third-party programming elements.

Terra Cotta

The firm also displayed a prototype of a more sophisticated end-user tool, Terra Cotta, which was designed to allow nonprogrammers to build Web sites with sophisticated application back ends.

The software would let users drag and drop a set of tiles together. Each tile represents a separate application that Terra Cotta would then integrate to work together. For instance, one tile might represent a database query tool. The tiles would function as wizards, with step-by-step, fill-in-the-blank dialog boxes that would let end users create parameters and variables for the underlying programs.

The Microsoft development tools were designed to be tightly integrated with users' existing business tools.

FrontPage 97 is part of Microsoft's Office 97 suite and has a common user interface to other Office applications. Internet Studio shares a similar look and feel to Visual Basic.

Oracle7
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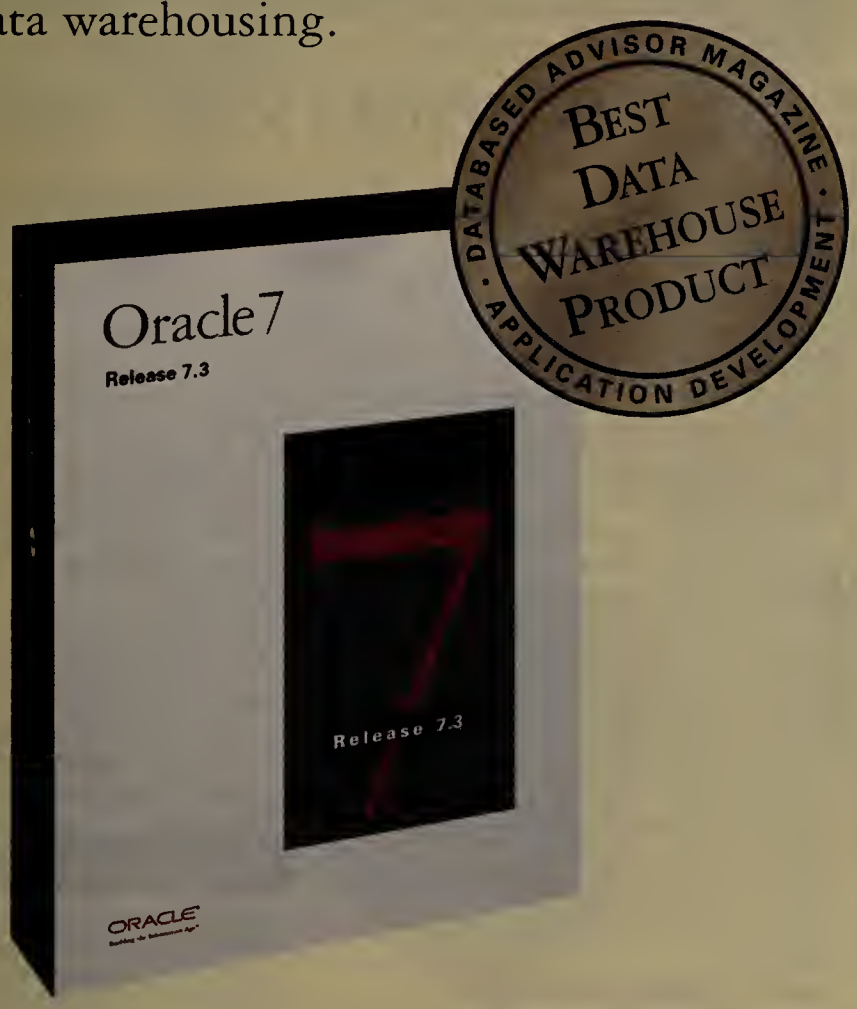
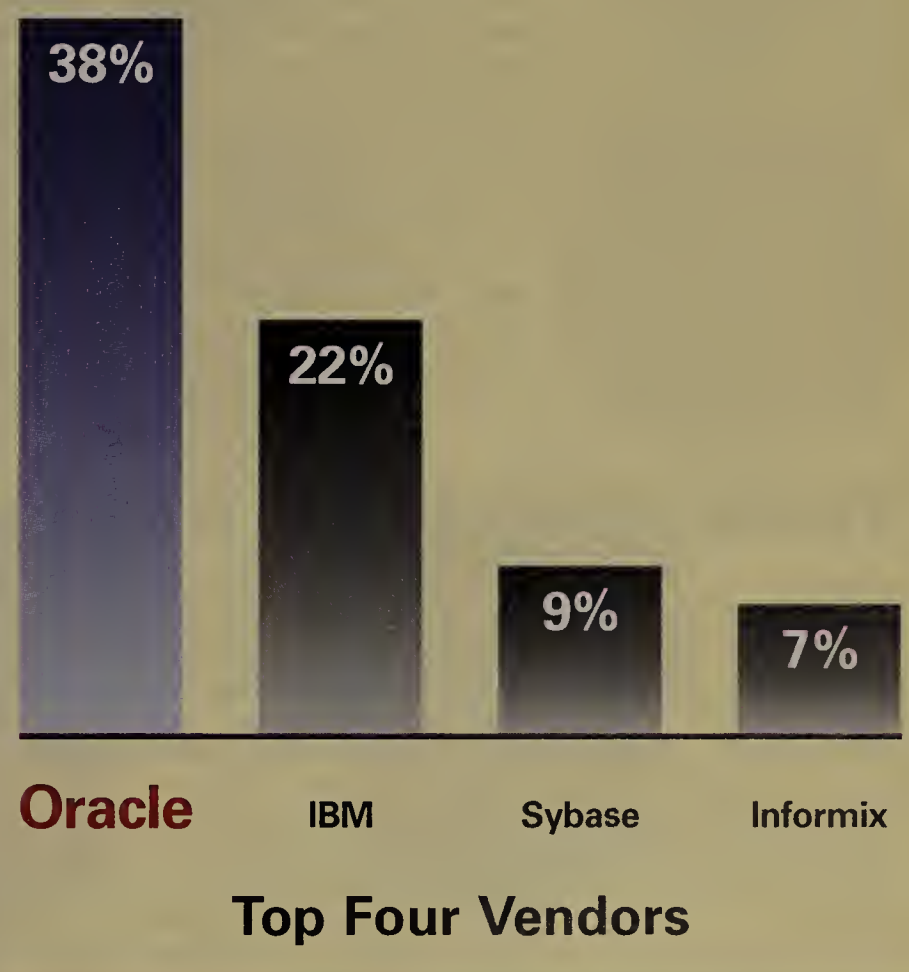
#1 Readers' Choice

Databased Advisor names Oracle7 #1 for data warehousing.



#1 Customer Choice

IDC names Oracle #1 in the worldwide data warehousing market.



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Teleport tackles WAN bottleneck

By Bob Wallace

Local carrier Teleport Communications Group last week launched a service that will let information systems managers in 55 cities link dispersed campus Fast Ethernet LANs.

Teleport's 100M bit/sec. Fast Ethernet LAN Interconnection Service can help exasperated users break the bottleneck they encounter when they try to link high-speed campus LANs by using slower wide-area network links.

Networking

While IS managers often run campus LANs at 100M bit/sec. or faster, telephone companies typically offer T1 WAN links that run at 1.54M bit/sec. or T3 links that run at 45M bit/sec. That creates the bottleneck.

Robert Amiral is one of many users to encounter this fast-growing problem.

"We're looking to connect two locations that are only two and a half miles away, but they're in downtown San Francisco, and the city wouldn't let us dig and install our own fiber," said Amiral, network operations manager at law firm Morrison & Foerster. "That put us in a big jam."

Amiral said he is excited about Teleport's Fast Ethernet LAN Interconnection Service because the carrier already has the fiber in place. Teleport also provides the routers needed to connect the sites and around-the-clock monitoring of the entire package.

"[Teleport] essentially becomes an extension of the end users' corporate MIS staff, responsible for maintenance and management of the WAN," said Liza Henderson, a broadband networking consultant at TeleChoice, Inc. in Verona, N.J.

With Teleport's new service, users won't have to pay for a full-time private line. It is priced based on usage, which means users save on WAN charges.

"Users may only need 35M to 40M bits on the 100M-bit line and shouldn't have to pay for the full bandwidth," said Dev Ittycheria, a data services product manager at Teleport. The company will price the service on a customer-by-customer basis.

Cost variables include the number of ports used on the router and the number of connections between sites. Teleport can link sites using point-to-point links or in a mesh configuration.

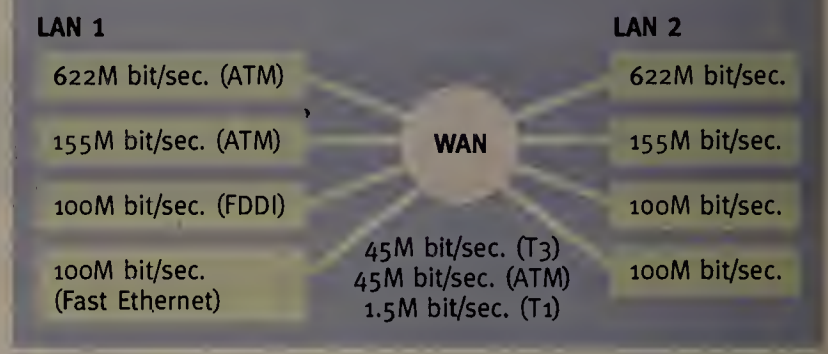
Teleport said it expects to offer the service over its metropolitan fiber networks but may need to use twisted-pair wire to reach sites in outlying areas.

The Fast Ethernet LAN Interconnection Service takes an average of 22 business days to set up, but Teleport can shorten that interval to meet users' needs, Ittycheria said.

The service is available in major cities, including San Francisco, Dallas, New York, Chicago, Los Angeles, Houston, Pittsburgh, St. Louis, San Diego and Indianapolis.

Unclogging a bottleneck

Before 100M bit/sec. Fast Ethernet, bottlenecks occurred because users only had WAN options of 45M bit/sec. or slower for connecting LANs



Frame-relay price war escalates

By Kim Girard

Tom Rowan's smile grows wider as the frame-relay price war escalates.

Rowan, network operations manager at Blood Systems, Inc., one of the nation's largest blood banks, is looking to save big as he gears up to ink a two-year voice and data contract.

"We know the prices have gone one way, and that's down," Rowan said. "I'm shopping. No question about it."

Rowan is considering rehiring LDDS WorldCom, Inc., the carrier he now pays $195 per month per port. That price includes a volume discount for 56K bit/sec. frame-relay service at 43 sites.

But he is also checking out AT&T Corp. and Sprint Corp. Both companies in the past week reduced their prices for frame relay, a wide-area packet-switching technology used predominantly for data traffic. MCI Communications Corp. also recently cut usage-based prices.

AT&T lowered prices on its InterSpan Frame Relay service by an aggressive 7% while hiking its private-line rates slightly. Sprint's price cuts range from 5% to 20%, depending upon a customer's network configuration. Analysts have predicted prices would come down as frame relay's popularity grows and larger carriers spar for data customers.

"I do think the price will continue to go down," said Scott Meyers, network operations manager at Cargill, Inc. in Minneapolis. "[Frame-relay] use has exploded in the industry [as] the reliability has improved."

The differences in pricing among vendors have narrowed since last October, when the Federal Communications Commission began requiring carriers to list their rates. Nonetheless, it remains a difficult task to determine which carrier's rates are the lowest, said Tom Jenkins, broadband consultant at TeleChoice, Inc., a consultancy in Verona, N.J.

"It's next to impossible to tell who's lowest" because some carriers charge widely differing rates for variables such as ports, permanent virtual circuits (PVC) and usage, he said.

AT&T's price cuts will apply to most users who aren't locked in to a volume discount or term contract but are committed to a contract that reflects tariff changes. Sprint's new rates affect its Burst Express Zero committed information rate (CIR) service and Burst Express Plus CIR service.

AT&T's monthly frame-relay charges

Port speed	Old rate	New rate
56/64K bit/sec.	$275	$225
256K bit/sec.	$830	$770

Two-way PVC prices	
56/64K bit/sec.	$94 to $101
256K bit/sec.	$429 to $461

Sprint's monthly frame-relay charges*

Port prices		PVC prices	
56/64K bit/sec.	$204	56K bit/sec.	$210
256K bit/sec.	$495	256K bit/sec.	$810

Burst Express	
56K bit/sec. port and PVCs	Starting at $319 per month

*Users can expect a 5% to 20% price reduction that primarily will affect the cost of the PVC

Lower costs spur move to more telecommuting

By Mindy Blodgett

PHOENIX

Reducing real estate costs is a primary driver behind the growing number of telecommuting projects around the country.

But less tangible benefits, such as employee retention, also figure in the movement to send workers home.

"We are in a severe growth mode right now, and we are really feeling the pressure on our facilities," said Barbara Reeves, manager of engineering and scientific programs at Boeing Commercial Airplane Co. in Seattle, who attended last week's Telecommuting '96 conference here.

Space and beyond

"Trying to cut down on space costs is one of the main reasons we are interested in telecommuting," Reeves said.

But tracking the true costs vs. the benefits can be difficult, industry observers told attendees.

"You just can't put a dollar value on a lot of the benefits of telecommuting," said Gil Gordon, an analyst and president of Gil Gordon Associates, Inc. in Monmouth Junction, N.J. "Employees are starting to see telecommuting policies as a benefit, and companies offering it will be more competitive."

Bob Moore, manager of office services at Compaq Computer Corp. in Houston, told attendees that the costs of a telecommuting rollout at his company came to about $13,000 per user during the first year, which included new computers and training.

But in the second year — after eliminating third-party outsourcing of help desk support and one-time start-up costs — per-user spending was cut to about $4,000.

Reeves said it was space cost savings that persuaded managers to sanction a telecommuting project with about 60 workers. But keeping employees is another prime driver.

"We have high attrition and training costs because we are in a competitive field," Reeves said. "If we can retain more employees, that is a benefit both for the company and the workers."

Tips for telecommuting

- Form a telecommuting team that includes technical experts, upper managers and human resources staff, and assign a telework coordinator
- Contact other companies to learn from their experiences
- Train participants and supervisors
- Monitor the program through surveys before and after a pilot

Measuring productivity gains, another claim by telecommuting advocates, is difficult, according to users and industry observers.

Aegon Insurance Group's Advanced Financial Services Division in Largo, Fla., is pleased with the success of a 2-year-old telecommuting project, said Kim McGonegle, a telecommuting coordinator. But "one of our goals is to quantify productivity," she said.

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Bringing order to ordering process

By Thomas Hoffman

This week, NECX Direct joins a growing number of Internet-based computer products distributors with a World Wide Web-based service designed to put information technology purchasing decisions back in the hands of information systems managers.

NECX Direct, a division of Peabody, Mass.-based NECX, is introducing the Enterprise Purchasing Network (EPN) through its Web site (www.necx.com).

The service — slated to go live early next month — allows IT purchasing managers with user IDs and passwords to set up a credit line, set spending limits and decide who in their organizations can place orders for Microsoft Corp. software or other goods.

Staten Island University Hospital CIO Patrick Carney: *'We've got to move to electronic purchasing'*

The service and others like it are a boon for IS managers, who have been bedeviled by runaway distributed computing costs and had difficulty in forcing users to adhere to company hardware and software standards.

But it isn't clear whether services such as EPN will stop wildcat technology purchases by rogue users.

Staten Island University Hospital in New York, for example, plans to use a Notes-based electronic IT ordering service from Compucom Systems in Dallas for those very reasons, said Patrick Carney, vice president and chief information officer at the hospital.

The usual, sir?

NECX Direct Enterprise Purchasing Network users can use standard Web browsers to "bookmark" frequently purchased products, such as Hewlett-Packard Co. printer cartridges.

"One of the cons is that it puts IS in the order-placement business, so we will probably let our purchasing department handle that," Carney said. He plans to start using the Compucom system in the first quarter of next year. The upside is that the service will streamline order processing and allow the hospital to keep electronic records of its orders, Carney said.

Money talks

Brian Marley, general manager of direct channels at NECX, points to a Fortune 10 customer who, prior to using his company's service, spent $36 million last year to order products — money added to the cost of the items received. Marley said volume discounts will initially be negotiated off-line with an NECX Direct account manager.

The idea of cost savings has sparked the interest of J. Benjamin Moore, manager of corporate information at North Carolina Electric Membership Corp., a Raleigh, N.C., electricity wholesaler. Moore said he is considering a Web-based service from Stream International to save money and control what sometimes is an influx of delivered products.

Users "are always complaining about what hardware we let them order," Moore said. "It would be nice to be able to stage orders, because I have a problem storing 100 desktops at one time."

Companies find hurdles to 'net-related customer service. See page 77.

Computerworld's Industry Journals

Special magazine supplements, specific to four major business industries: financial services, retail, healthcare and telecommunications.

The Computerworld Journals are written for IS and business management working together to deploy distributed computing for the enterprise. Each journal gives you pertinent coverage on critical technology trends and products, implementation challenges and management issues -- all in the context of what impact this information has for your organization and the industry you work in.

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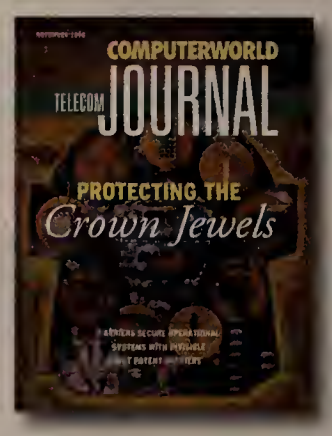

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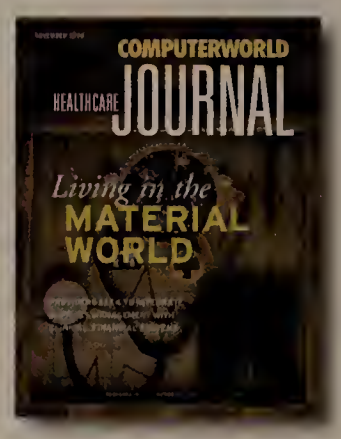

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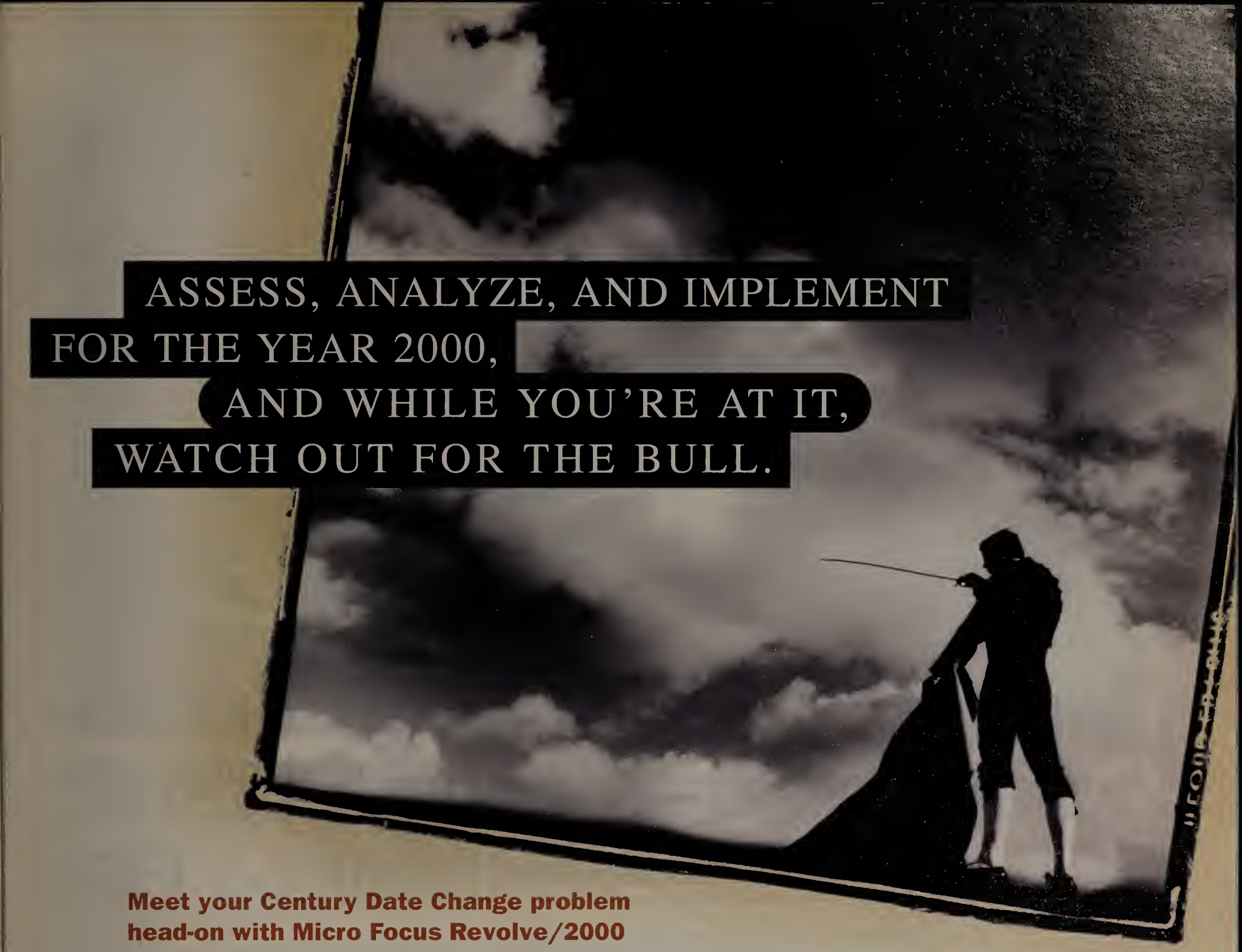

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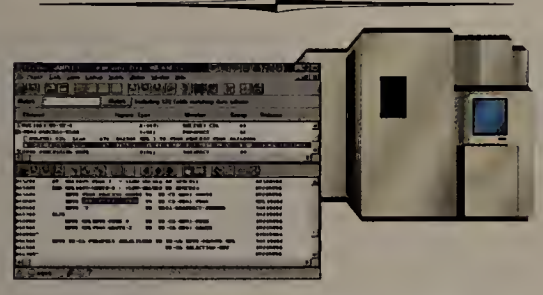

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Baby Bells ring out

Say rising 'net use bringing telephone network to a halt

By Kim Girard

As the Baby Bells wage a battle to squeeze more money out of Internet users accused of overloading the telephone system, it is business as usual online for many IS managers.

Regional Bell operating companies (RBOC) have recently released a spate of studies and statements that contend that escalating Internet use is bringing the telephone network close to gridlock. That means more busy signals or dead lines for callers.

"I don't buy it," said Eric Mills, network operator at Fox Sports Direct in Irving, Texas, a company that encrypts satellite signals for sports networks. "I think [the RBOCs] are looking for government subsidies so they can upgrade their own [telephone] systems."

On the flip side

The other side of the argument is that RBOCs deserve that extra cash, said Matthew Cutler, president of the Webmasters Guild.

"People don't pay for what they use," he said. "[Internet providers] fund those who stay online forever. I think we will see some price changes within 12 to 24 months."

Mills said news of Internet problems hasn't stopped his plan to provide dedicated access to half of the 100 employees in his office.

He said he is confident that online rates will remain low, despite talk that Internet service providers, if charged more by the RBOCs, will pass increases along to business customers.

The RBOCs have asked the Federal Communications Commission to make Internet providers pay more than the average $30-per-month rate for a telephone line, arguing that Internet users tax the network by staying online five times longer than telephone users.

"Everyone is entitled to fair and reasonable profit," said Paul Maszczak, corporate director of information technology at CR Bard, Inc., a medical equipment maker in Murray Hill, N.J. If Internet providers raise prices, "it will be just be a temporary fix anyway," Maszczak said. "As the capacity catches up, the prices will go back down."

Mitchell Porche, MIS manager at Jack White & Co. in San Diego, said he has heard little about the problem. He said he is more concerned about keeping the network secure when 30 of the company's 300 employees are on the World Wide Web.

"The question is, are the phone companies crying wolf?" Porche said. "It's a tough call." But he said the telephone companies are at fault for taking on more traffic than their network can handle without investing in new switches.

Although IS is affected by Internet problems, the problems are beyond their control, said Bob Metcalfe, vice president of technology at International Data Group, the parent company of *Computerworld*.

"It's a big problem, like socialized medicine," he said. But Internet providers are "in a dream world when it comes to economics and should no longer be subsidized," he said, meaning there shouldn't be $19.95-per-month unlimited access rates for users.

Randy Weston contributed to this story.

Swamped

A Pacific Telesis Group study of some of its switches found:

- The average Internet connection is 20.8 minutes long, compared with a 3.8- minute average telephone call
- 10% of Internet calls are six hours or longer
- The peak hour for phone systems is 10 p.m., due to increased Internet use

Data access shortcut

Kit links applets to middleware apps

By Tim Ouellette

An agreement made last week may give users who run World Wide Web browsers access to transaction data found in IBM's middleware applications.

As a result, application developers can avoid the complex process and security hurdles required to give users access to widespread legacy business systems through CICS, MQSeries and Encina transaction middleware.

IBM, Sun Microsystems, Inc. and integrator Planetworks, a subsidiary of Tangent International in New York, announced plans for a tool kit that lets Java developers use Java applets to pull data from existing transaction systems.

The tool kit, called Interspace, will cost $4,995 for a two-user license and will ship by year's end. Interspace will run on AIX, Windows NT and Sun's Solaris platforms. It uses technology from PlanetWorks to link Java applets to IBM's middleware (see chart).

CICS, MQSeries and Encina are middleware packages that make it easier to move complex data across different computer platforms and applications. Middleware removes much of the complexity in the secure passing of data in the proper format among different systems.

"We are hoping to see a browser be able to create a Java applet that talks with MQSeries and accesses whatever data you want on the back end," said Jim Cantin, a systems architect at Eastman Kodak Co. in Amherst, N.Y.

Secure data

By using MQSeries or CICS as a delivery mechanism, legacy data is securely available for Internet access rather than residing on less-secure PC servers or Web servers, analysts said.

But users shouldn't rush to give everyone access to legacy transaction applications.

"CICS applications are usually designed for only internal users," said Ed Acly, an analyst at International Data Corp. in Framingham, Mass. "So users may have to totally redesign the applications anyway for a general Internet audience."

And Internet users are more often interested in data access rather than production/transaction CICS applications, Acly said.

But Sue Eustice, an analyst at Wintergreen Research, Inc. in Lexington, Mass., said getting middleware to the Internet is important to improving business over the Web.

And a recent report by D. H. Andrews Group, Inc. in Cheshire, Conn., said, "There is an opportunity for IBM's middleware to become a de facto standard for commercial transactions on the Internet."

Caught in the middleware

To simplify Web access to legacy transaction systems, three vendors have developed pieces of a new tool kit:

Vendor	Pieces
IBM	CICS and MQSeries clients, CICS and MQSeries servers, CICS Gateway for Java
Sun	Java development software
PlanetWorks	Interspace software simplifies the development of Web-enabled middleware applications

Java is like a sports car — bound for a cliff. See page 59.

RSA offers kit for secure credit-card transactions

By Gary H. Anthes

RSA Data Security, Inc. will announce today a tool kit for developing secure applications that support credit-card transactions on the Internet.

The tool kit, called S/Pay, supports developers' use of the Secure Electronic Transactions (SET) protocol developed by Visa International, Inc. and MasterCard International, Inc. SET uses RSA encryption to ensure confidentiality and data integrity during transactions. Observers said it is emerging as the de facto standard for Internet-based credit-card applications.

Electronic commerce

SET solution

SET can be used for any kind of credit-card transaction sent over a public network, such as consumers shopping on the World Wide Web, or for business-to-business transactions on the Internet.

"SET will be the solution of choice for credit-card payments," said James Galvin, program manager for security and payments at CommerceNet, Inc., a nonprofit group of vendors and user companies in Menlo Park, Calif. "By the end of the year, there will be many announcements of SET-enabled products."

Some CommerceNet members will offer credit-card services built around SET, Galvin said.

SET tool kits such as S/Pay are essential for the broad deployment of electronic commerce using credit cards, Galvin added.

S/Pay comes in three versions, one each for applications used by cardholders, merchants and banks. Any application software that handles credit-card data needs to be made SET-compliant via S/Pay or some other mechanism.

Other SET tool kits already exist. For example, IBM offers one for application developers.

The RSA kit was designed to trim the time it takes to develop SET-compliant applications. It also will reduce the chance that errors in implementing the SET standard will leave security holes in users' applications, said Gary Kinghorn, product marketing director at RSA (www.rsa.com).

That isn't an unlikely possibility when software vendors implement their own cryptography, said John Pescatore, a senior consultant at Trusted Information Systems, Inc. in Rockville, Md.

The federal government sets up a computer emergency response team. See page 78.

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Summit to focus on management tools

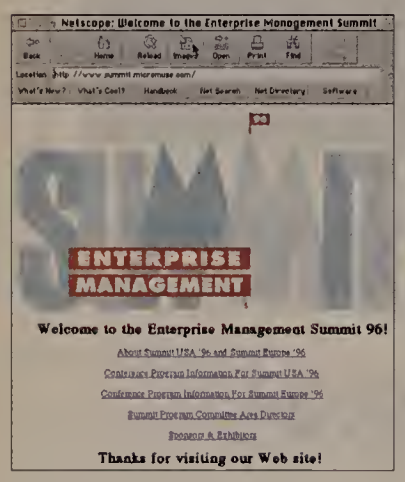
By Patrick Dryden

Nearly 2,000 administrators of networks, systems and applications this week will seek help with an ongoing problem: how to make individual management tools work — and someday work together — to control complex environments.

That's the basic need that will draw information systems troops out of the trenches to Santa Clara, Calif., for the Enterprise Management Summit '96 conference, show organizers said. The management group is based in San Francisco.

Show preview

Besides catching up on the latest advances from key vendors, users can collect tips and tools for their integration efforts.



Users can learn more *about the Enterprise Management Summit at www.summit.microuse.com*

"We're starting with a clean sheet to build our own structure that can integrate management tools," said Darrell Epps, communications engineer at Chevron Information Technology Co. in San Ramon, Calif.

Vendors won't compete in the traditional shoot-out, a much-watched event during which vendors apply their products to solve hoary problems that managers face daily. Reality has struck: The vendors now complain that those scenarios required too much time, money and expertise.

To avoid embarrassment, vendors in noncompetitive demonstrations will address 15 predefined problems such as performance management and software distribution.

In that showcase, **Platinum Technology, Inc.** plans to demonstrate the integration of its various point products. The Oakbrook Terrace, Ill., vendor will tackle the real-world scenarios using it's newly coordinated tools.

BMC Software, Inc. in Houston will introduce Version 3.1 of its Patrol management suite. Patrol's new console interface and reports can help administrators watch the logical relations among applications and the physical connections, for example, among database servers. And to help monitor service quality, **InfoVista, Inc.** in Paris will demonstrate a tool that can help track performance of networked applications to the department level in large organizations.

New and expanded alliances will turn up this week, showing once again that no vendor can provide all management pieces. **Digital Equipment Corp.** will continue its string of reseller agreements by announcing a partnership to sell Patrol management tools from BMC Software.

Same side

Even competing products will gain common support to help harried managers responsible for heterogeneous networks.

Look for a demonstration of network performance modeling by **Cisco Systems, Inc.** that includes routers from rival **Bay Networks, Inc.** Cisco next week plans to deliver a tool that tracks end-to-end traffic through both router brands, using technology from its recent acquisition of NetSys Technologies, Inc.

Seagate Software will launch a version of its event-correlation software for Windows NT servers and network devices. Like its Unix-based predecessor, NerveCenter NT filters multiple alerts and events throughout a network, identifies the problem and takes corrective action, such as paging an operator or invoking a Windows NT command. It will ship next month, starting at $1,650.

Hewlett-Packard Co. will introduce a version of its Unix-based OmniBack backup and restore software for NT servers.

But all attendees' dreams won't come true, of course. HP, for example, remains behind schedule for delivering a version of its OpenView Network Node Manager that runs on Windows NT.

HP demonstrated the Unix alternative to the OpenView Forum user group in June and promised delivery by now. But HP officials said they don't expect to beta-test that version until year's end.

Tivoli seeks 'open' crown

Conference hopes to ease tool integration with TME 10

By Patrick Dryden
AUSTIN, TEXAS

Efforts by Tivoli Systems, Inc. to build multivendor support for its enterprise management platform may give the IBM subsidiary an edge over rival Computer Associates International, Inc., according to some users and industry observers.

At last week's Tivoli developer's conference here, programmers and marketers from 200 management software vendors started to make their tools work together to control complex networks, systems and application processes.

Analysts deemed the turnout significant. And they said the formation of 10 working groups — which will define how any tool can fit Tivoli's management framework — is unique for a fragmented industry.

Less work for users

If Tivoli and its partners succeed in delivering on this interoperability promise next year, users will be spared the chore of integrating favorite tools themselves. That would allow compatible management applications to share alerts, status information and processes directly via the TME 10 platform.

Tivoli's Management Working Groups could make a big difference in integrating and automating tools more quickly, said Peter Martin, vice president of enterprise automation at Wells Fargo & Co. in San Francisco.

Both CA and Tivoli allow users a choice in selecting the components of their overall enterprise management platform. But Tivoli seems more proactive, while CA remains reactive, said Chip Gliedman, an analyst at Giga Information Group in Cambridge, Mass.

"Tivoli is taking the lead to make its TME 10 platform an open standard, while CA leaves it up to vendors to tie in to Unicenter," Gliedman said. "Vendors will have to support both platforms, but Tivoli's approach may be the swing factor for deals over the next year."

Tivoli's approach of "letting us select best-of-breed products" was very important in choosing TME 10 over CA's Unicenter, said David Bowman, director of mid-range systems engineering at Ameritech, Inc. in Chicago.

The pro-Tivoli comments were just a product of attendee excitement, CA officials said. They claimed that users and analysts deem Unicenter equally open — or more so. Vendors wisely back both platforms, CA officials said, noting that more than 100 use CA's kit to integrate their tools with Unicenter.

CA's moves

CA is shifting from a suite accessible through a software developer's kit to a more open platform, said Paul Mason, an analyst at International Data Corp. in Framingham, Mass. But Tivoli leads in easing tool integration, he said.

"Unicenter is like a picture book. You can change some pages if you line up the illustrations and insert them carefully," Mason said. "TME 10 is more like a binder equipped with some needed pages. You can insert any page that lines up its punch holes."

Users pleased so far with Tivoli under IBM. See page 61.

Tivoli's busy year

APRIL	Published road map for delivering TME 10, one month after merger with IBM.
MAY	Introduced flexible pricing model for distributed management products.
JUNE	Formed management working groups with vendor partners; defined open interfaces for TME 10.
JULY	Delivered Tivoli Manager for Applications package for deploying Powersoft's client/server programs.
AUGUST	Formed 10/Plus Association. Its goal is to allow tools from any partner to work together on TME 10 framework.
SEPTEMBER	Announced Management Gateway Broker to link TME 10 with workgroup managers from other vendors. Shipped NetView on Windows NT.
OCTOBER	Introduced Global Enterprise Manager, a TME 10 application interface. Hosted 200 tools vendors at a developer's conference to define integration standards.

Stamped with approval

Lots must happen before users can rely on Tivoli's TME 10 to integrate their favorite vendors' management tools. Tivoli and its partners must complete the definition of 10 interfaces for TME 10 and implement that support in their products. In the meantime, other help is on the way.

Last week, Tivoli certified 19 products as ready to run with TME 10. All will ship before the end of the year.

Four database management tools from vendors such as Informix Corp. and Sybase, Inc. run on the TME 10 platform.

Tivoli provides modules that link existing tools to TME 10 so that operators can exchange alerts and launch various consoles. Those include tools such as a workload manager from Platinum Technology, Inc., an output manager from Dazel Corp., storage managers from IBM and Legato Systems, Inc., four security managers, a LAN manager from Compaq Computer Corp. and five help desk systems.

New TME 10 providers include the systems integration arm of Sun Microsystems, Inc. Digital Equipment Corp. announced plans to adopt TME 10 NetView network management software, and an official said the agreement could extend to the entire TME 10 line.

— Patrick Dryden

Oracle show highlights NC

CONTINUED FROM PAGE 1

effort to bust up Microsoft Corp.'s hegemony over the desktop.

But Oracle has some convincing to do — even among its loyal customer base.

In theory, Microsoft's brand-name advantage should be diluted in network computing environments that hide everything under the covers of the World Wide Web, said Robert Rubin, chief information officer at Elf Atochem North America, Inc., a chemicals manufacturer in Philadelphia.

Elf Atochem CIO Robert Rubin *says Microsoft's brand-name advantage is expected to be diluted in network computing environments*

"When I talk to somebody on the Internet, I don't even know what they're using on the other end," he said.

But the rub for Oracle is that the usefulness of network computers "is not totally established," Rubin said. "There certainly will be a place for them. But the question is, 'Will it be a dominant place?' "

Several other users also were doubtful that the Windows-centric world view would change any time soon.

Paul Hoedeman, CIO at AlliedSignal Aerospace in Torrance, Calif., said a recent decision that requires AlliedSignal end users to get information systems approval before installing PC software "was very unpopular." Getting his users to accept network computers would take "some very heavy selling," he said.

Even if network computers do catch on in a big way, Oracle "wouldn't leap out in my mind as the obvious candidate to capitalize on this," Hoedeman said. "I just don't think of them as being that nimble."

The arsenal

Oracle this week will detail the following battering rams for its anti-Microsoft crusade:

- A line of Intel Corp. Pentium-based network computers that should appear in the first half of next year. Oracle will announce a software environment and a reference hardware design for the boxes.
- A set of Java-based desktop applets, codenamed HatTrick, that sources said are expected to be thin-client alternatives to Microsoft Office.
- Development tools for moving applications from Windows desktops to intranet-based servers.
- More specific plans for products that support Oracle's object-based Network Computing Architecture.

Ron Hawkins, director of information technology at Millipore Corp. in Bedford, Mass., said the network computing concept sounds great. "But from a practical standpoint, it's more of a novelty item for me right now," he said. "It's not even on the radar scope for us to look at."

Network computing

That's because of the immaturity of technologies such as Java and concerns about network bandwidth, Hawkins said. "There could be a tremendous infrastructure impact here if you're talking about everything coming over the network."

Products such as HatTrick and Developer/2000 for the Web "look pretty damn good," said Michael Prince, MIS director at Burlington Coat Factory Warehouse Corp. in Burlington, N.J.

"But as long as the ubiquitous computing platform is Windows, Oracle can't go head-to-head with Microsoft, no matter how good its applets are."

Informix unveils distributed management, replication tools. See page 53.

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Measure before you manage

DecisionOne to launch asset simulation tool at Comdex

By Thomas Hoffman

You can't manage what you can't measure.

That is the message DecisionOne Corp. hopes to send at Comdex/Fall '96 later this month when it introduces an asset simulation tool designed to measure total cost of ownership and end-user technology utilization, *Computerworld* has learned.

The system, which consists of a relational database and a Microsoft Corp. Visual Basic application front end, would enable information systems managers to determine how much it might cost to migrate a 200-seat accounts payable department from Novell, Inc. NetWare 4.1 to Microsoft's Windows NT 3.5.1.

That type of analysis would also enable chief information officers such as Brooklyn Union's Tina G. Barber to figure out "whether we're wasting money having everyone installed on a particular software package," she said.

Other IS managers, including William Wong, manager of financial systems at Blue Cross/Blue Shield of Connecticut in North Haven, were not sure if tools such as DecisionOne Simulator would be effective for their shops.

"We don't do that much cost-justification when we're upgrading networks or servers — we usually do that for business reasons," he said.

Brooklyn Union's Tina G. Barber *says asset tools could prevent the bank from overlicensing users for desktop software*

Wong said a total-cost-of-ownership tool might be able to help the health insurer rein in some of its runaway distributed computing costs. "If the end user puts up a big enough argument, we usually install the hardware or software for them," he said. "Maybe we should start thinking about cost-justification."

The software and services required for these types of analyses will cost between $20,000 and $45,000, said Ben Tatta, director of marketing at Frazer, Pa.-based DecisionOne.

The simulator uses a total-cost-of-ownership tool called C/S Solutions Advisor from Interpose, Inc. in Altamonte Springs, Fla. It determines how much it would cost to support a network environment over several years, including labor costs, network growth and downtime, Interpose President Tom Pisello said.

Measuring use

DecisionOne and Interpose also plan to incorporate by mid-December a "sniffer" technology from U.K.-based Prometrics' Desktop Watch tool. The technology ferrets its way through a network to calculate, for example, the percentage of functionality a company's end users are utilizing with word processing software.

Those calculations would be done by partly using total-cost-of-ownership data from research outfits such as Gartner Group, Inc. and interviewing end users on their usage habits, Pisello said.

DecisionOne Simulator will come in two pieces — a total-cost-of-ownership simulator and a process simulator designed to measure, for example, the cost of help desk support, Tatta said.

Analysts said other total-cost-of-ownership tools, including those from Tally Systems Corp., Symantec Corp. and McAfee Associates, Inc., are becoming more sophisticated and should begin delivering functionality similar to DecisionOne Simulator by next year.

"There are a lot of [IS managers] running wild with the reality of total cost of ownership being thrown in their faces" by senior management, said Steve Clancy, principal analyst for desktop life cycle services at Dataquest Worldwide Services Group in Westboro, Mass.

Sun, Microsoft enter field

CONTINUED FROM PAGE 1

own network computer specifications last week.

"It's really hard to read the tea leaves right now," said Michael Prince, MIS director at Burlington Coat Factory Warehouse Corp. in Burlington, N.J. "The definition of [a network computer] seems to vary from vendor to vendor. Right now, it's sort of a catch-all term."

Network computing

Prince wants to use network computers to run Unix applications without breaking out of a thin-client mode. But choosing the network computer horse for the company to ride is a daunting task right now, he said.

The retailer is looking at buying 35 "souped-up X terminals" as a holding tactic while it tries to pick a vendor to supply boxes for its 270 stores early next year.

Other users are more skeptical about the future of these network devices.

"I don't think this [network computer] idea will go anywhere," said Craig Perry, manager of software development at Womex World Merchandise Exchange in Fairfield, Conn.

These new appliances are overkill as replacements for dumb terminals, Perry said. "If you replace an ASCII terminal with something graphical, you have the time and expense of rewriting your applications," he said. "Why do that?"

But IBM said it doesn't expect that network computers will fit every user's needs, but will work well in corporate environments where most users need access to word processing applications, the Internet and electronic mail.

Eileen O'Brien, an analyst at International Data Corp. in Framingham, Mass., said users may be confused by the breadth of products falling under the network computer label. She said the machines aren't likely to replace the PC in the foreseeable future.

Money matters

For many users, however, the real drawing power of the devices will be the lower cost of supporting and administering them.

"The cost savings between the PC and the JavaStation looks to be real," said Terry Carlin, head of systems and product launch at British Telecommunications PLC in London. He said BT has saved between 50% and 60% with beta JavaStations from Sun.

Here is how the different boxes stack up:

Network computer comparison

Vendor/ Product	Processor	Memory	Operating environment	Availability	Price
Microsoft/ NetPC	133-MHz Pentium	16M bytes	A version of Windows	First half of 1997	NA
Oracle/ Oracle NC	Pentium	NA	Oracle NC operating system	First half of 1997	$500 without monitor, $900 with monitor
Sun/ Java Station	Sun SPARC	8M bytes	Java operating system	December	$800 to $1,500
IBM/ Network Station	An IBM micro-processor	8M bytes	Windows NT, Unix and OS/2	By year's end	$695

NA - information not available

JERRY VALENTE

Burlington Coat's Michael Prince: *'The definition of what [a network computer] is seems to vary from vendor to vendor. Right now, it's sort of a catch-all term.'*

- Sun's network computer runs the Java operating system and more than 85 Java-based applications. It also features a HotJava World Wide Web browser and can access Windows applications.
- Oracle's network computer, for which it is developing software, features a Pentium processor and works with both Netscape Communications Corp.'s Navigator and Oracle's Personal Oracle Lite Database.
- IBM's Network Station comes with an IBM microprocessor, memory, network adapter, keyboard and mouse. A monitor is optional.
- The Intel and Microsoft NetPC will have a minimum 133-MHz Pentium processor and 16M bytes of memory when it ships.

Details will be finalized by year's end by Microsoft, Intel, Compaq Computer Corp., Dell Computer Corp. and five other PC makers that have signed on to supply the machine next year.

But the stripped PC that Microsoft proposes has some analysts questioning whether it is a real network computer or just less PC.

"For so long, Bill Gates thought this technology was nuts. And so to come out and obviously bless the technology now, I really needed to chuckle because if you get down to the nitty-gritty of the specs, it's nothing new," O'Brien said.

Dave Smith, an analyst at Gartner Group, Inc. in Stamford, Conn., said, "If you thought there was nothing in the network computer, there's less to this."

Staff writers Kim S. Nash, Sharon Gaudin, Craig Stedman and Mitch Wagner contributed to this report.

Will users give up PCs for network computers? See page 45.

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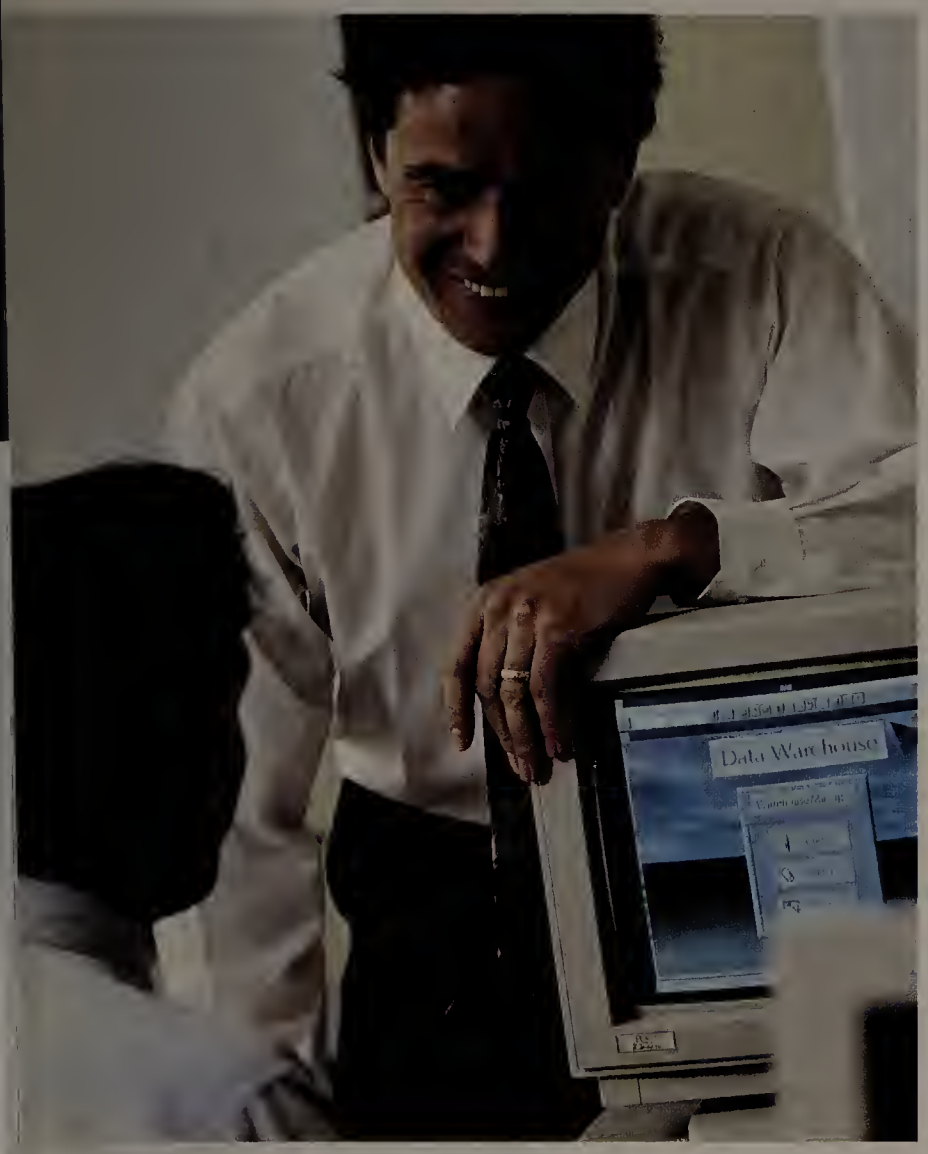

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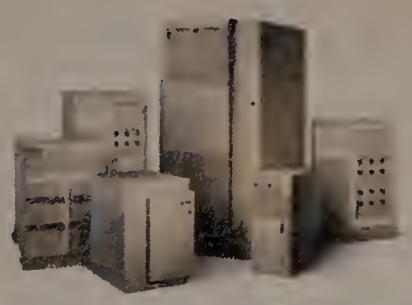

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Tools cut remote access costs

By Mindy Blodgett and Justin Hibbard

Steven Wittner has his hands full providing support, training, software, hardware and remote connections to more than 50 offices and dozens of mobile workers.

One major challenge is to keep costs down by limiting the connection times for remote online users, said Wittner, network manager at Centex Construction Group, Inc. in Dallas.

And Wittner isn't alone. Companies are increasingly sending workers on the road or opening remote offices — adding a host of costs and headaches to the usual range of support issues.

Wittner has solved some of his problems by using a tariff management product from Shiva Corp. in Burlington, Mass., which allows users to do most of their work off-line. He also is installing an Integrated Services Digital Network line, which offers five times the bandwidth of 28.8K bit/sec. modems, where available.

Time-savers

Products are emerging to shorten connection times for mobile users

- Electronic-mail clients such as Eudora from Qualcomm
- Off-line Web browsers such as WebEx from Traveling Software
- Client/server applications such as RemoteWare from XcelleNet and products from Technology Solutions Development

Shiva is one of a growing number of vendors that offer products that allow remote users to maximize off-line time on a stand-alone copy of an application before making a connection.

The benefit is mainly in shorter connection times, which lower telephone bills and reduce the likelihood of dropped connections. IS managers also report that shorter transmissions and easier communications increase the productivity of mobile workers.

Synchronization tools

Vendors are responding with several new product categories that gather data off-line through intelligent agents, queue the data for transmission and then exchange the data in brief communication sessions — a process called synchronization.

"It makes a difference when you have salespeople that are not technicians," said Dan Barth, vice president and chief information officer at Pinnacle Brands, Inc. in Dallas. "One phone call takes care of all their transfer needs."

Pinnacle recently installed a sales force automation system that gives users remote access to Notes, an online analytical processing database and PCs on the company's LAN. Transferring large files to and from headquarters would ordinarily take more than an hour and require many connections.

Barth and his team installed XcelleNet, Inc.'s RemoteWare and its RemoteWare Replication Agent product. Together they let remote users conduct transactions with the main office in one connection. While the client and server are disconnected, agents on both sides scan documents, databases and applications for changes made since the last connection. The changes are replicated, compressed, queued for transmission and exchanged in one phone call.

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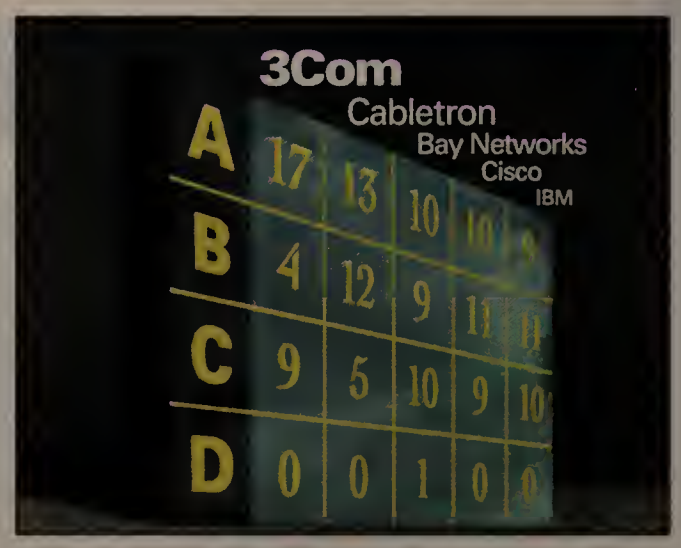

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IBM users want closer ties to NT

By Tim Ouellette
ATLANTA

At the Common conference last month, IBM provided users with an AS/400 road map that promises to give the midrange system more processing punch. But users said they also hope for a better fit with Windows NT systems.

IBM revealed the following AS/400 plans for next year:

- Sixty-four-bit RISC models of the AS/400 will begin to ship with support for up to eight high-speed PowerPC processors. The models will be designed to speed up processing, especially for power users.
- The same RISC systems will provide 20G bytes of system memory to speed access to information stored on the AS/400's integrated DB2 database.
- A Windows NT Workstation version of Client Access/400 will hit the streets, letting Windows NT Workstations access AS/400 applications without having to go through an emulation screen.
- To provide World Wide Web integration and simplify client access, IBM hopes to ship native Java support in OS/400.

Users are especially eager to blend the Windows NT and AS/400 environments, and they don't like being hampered by the lags in AS/400 development.

"We initially wanted to put Windows NT Workstation into our accounting department [to access the AS/400], but Client Access/400 isn't available for that yet," said Eliot Robinson, an information systems manager at Sterling National Bank & Trust Co. in New York.

Other users said they want the AS/400 to host their NT Server applications on the AS/400's Integrated File Server, which is essentially a built-in Intel Corp. PC board.

"The reason we went to AS/400 RISC is that with the Integrated File Server, we can drop Windows NT right onto it," said Gary Reichman, database manager at the American Red Cross in Atlanta.

Cautious approach

Some users even said Common isn't moving fast enough to offer enough Windows NT or Windows 95 sessions during the conference. But for IBM, there is some danger in embracing NT too closely. Although the AS/400 scales better than other systems, competitors such as NT will be able to meet nearly 90% of the needs of most database and application requirements by 1998, said Tom Bittman, an analyst at Gartner Group, Inc. in Stamford, Conn.

And once users place more Windows NT applications on the AS/400, they may decide to off-load everything to a separate Windows NT server and leave only file and print services on the AS/400, Bittman said.

But IBM officials said the AS/400 has two characteristics in its favor: a 64-bit architecture that lets existing applications take full advantage of the newly available addressing space without additional programming, and a similarity between the structure of Java and OS/400 that will let the two integrate very well.

IBM rolls out AS/400s and RS/6000s to compete with NT. See page 45.

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Has It Changed Your Life Yet?

Lotus eyes groupware vistas

New president talks prices, emphasizes retail market push

Lotus Development Corp. has a new president, former Chief Operating Officer Jeffrey Papows. And the Cambridge, Mass., subsidiary of IBM has a new naming and pricing scheme for its groupware products. Papows last week spoke with Computerworld *senior writer Tim Ouellette about both topics.*

"The real cost argument is about scalability, reliability and cost of ownership."

— Jeffrey Papows, *President, Lotus*

CW: What do you want to tell the Notes user base about yourself and your background?

JP: I've spent 17 years in the systems software side of business — meaning databases, tools and applications. I've been at Lotus for five years. The composition of the management team at Lotus is much more enterprise-critical than people suspect.

CW: Competitors continue to use price as a differentiator to Notes. Do your plans to raise server pricing in January hurt Lotus' position?

JP: I don't think so. It wasn't so much a pricing action as a range of additional product extensions and added new technology. The point of comparison is pertinent because our SMP version of Domino costs $2,995 compared with $3,995 for [Netscape Communications Corp.'s] SuiteSpot. Whether our SMP server is two, four, six or eight processors, it is one price. Netscape goes up 40% when [it adds] a new processor. The real cost argument is about scalability, reliability and cost of ownership.

CW: Even though you are committed to competing in the client arena, does the price increase reflect the fact that the server side is the more important buy for users these days?

JP: What we said is, we now have a vivid design around the high-value end of the Web server market — collaboration, application services, transaction and content. We want to have the same kind of dominant share in that space. Netscape and Microsoft are saying it isn't about browsers but higher-value clients. But most of the function they deliver is still synonymous with what we ship now with Notes.

CW: With price increases, will service costs change at all?

JP: There is no effect. It all fits right into the Passport [support] program.

CW: Microsoft claims there are more Notes users running its Office than Lotus' SmartSuite. Will you go after these users to move them to SmartSuite, and how?

JP: We have focused around retail sales and for the first time got involved in an OEM strategy for SmartSuite. A year ago, we had 11% share in this area. We have 27% share now. It clearly is working.

& **Desktop suite market** heats up with product updates. See page 55.

Notes changes name, shifts focus to Internet

By Tim Ouellette

Domino is now the name of the game for Notes users. And it could be a more expensive game.

That's because Lotus Development Corp. has renamed Notes 4.5, which will ship by year's end, as Lotus Domino 4.5: Powered by Notes.

And to reflect the additional functionality crammed into the groupware product since late last year, the Cambridge, Mass., subsidiary of IBM is hiking the server price to $995 (see chart).

But observer said the changes are justified as Lotus turns Notes into an Internet and intranet server. Notes client naming and pricing will remain the same, however.

"The repricing comes as no surprise. I imagined Lotus would either unbundle Domino or increase server pricing," said Bruce Reed, manager of technical services at Intrinsa Corp., a Notes shop in Palo Alto, Calif. "Considering the capabilities of the entire package, it is a bargain by any standard."

Reed said the group scheduling features alone are worth the $500 increase.

Other capabilities announced last week include Domino server licenses for non-Notes clients for $35.

And early next year, Lotus will introduce $29 software, called Weblicator, that gives World Wide Web browsers use of Notes replication features to download Web data that gets fully text indexed.

Additionally, users can opt to buy clustering and server usage tracking features for an additional $1,000 per server. Called Domino Advanced Services, the features were originally planned for delivery last summer. Currently, Public Notes Network providers such as the IBM Global Network use these features to offer wide-scale services and track billing data.

"Lotus is continuing to push the mission-critical envelope of what intranets can provide," said Ian Campbell, an analyst at International Data Corp. in Framingham, Mass. "The value is increasing at a greater rate than the price."

Take Note, it's Domino now

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• CC:Mail MTA	• CC:Mail MTA
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	• Native HTML/HTTP support
	• Integrated group scheduling
	• Integration with Windows NT
	• Support for POP3 clients
	• Domino Advanced Services ($1,000)
	• Mail-access license for non-Notes clients ($35)

Fix is in for U.S. Robotics modems

By Mindy Blodgett

U.S. Robotics Corp. has announced a fix for several models of the Sportster V.34 modems that tend to pause unexpectedly during some types of data transmissions.

The fix — either the replacement of the faulty chip set or an exchange of buggy modems for a newer, bug-free model — is available through the U.S. Robotics World Wide Web site (www.usr.com).

The problem affects several models of the V.34 fax, voice and data modems for desktops.

U.S. Robotics officials in Skokie, Ill., said that through the Web site, users can fill out a form and electronically mail it in for the free exchange program.

Company officials said the problem only affects interactive data transmissions, such as online chatting.

The fix announcement comes about six months after users complained about bugs in U.S. Robotics Sportster and Courier PC Cards for laptops.

Overheating glitch

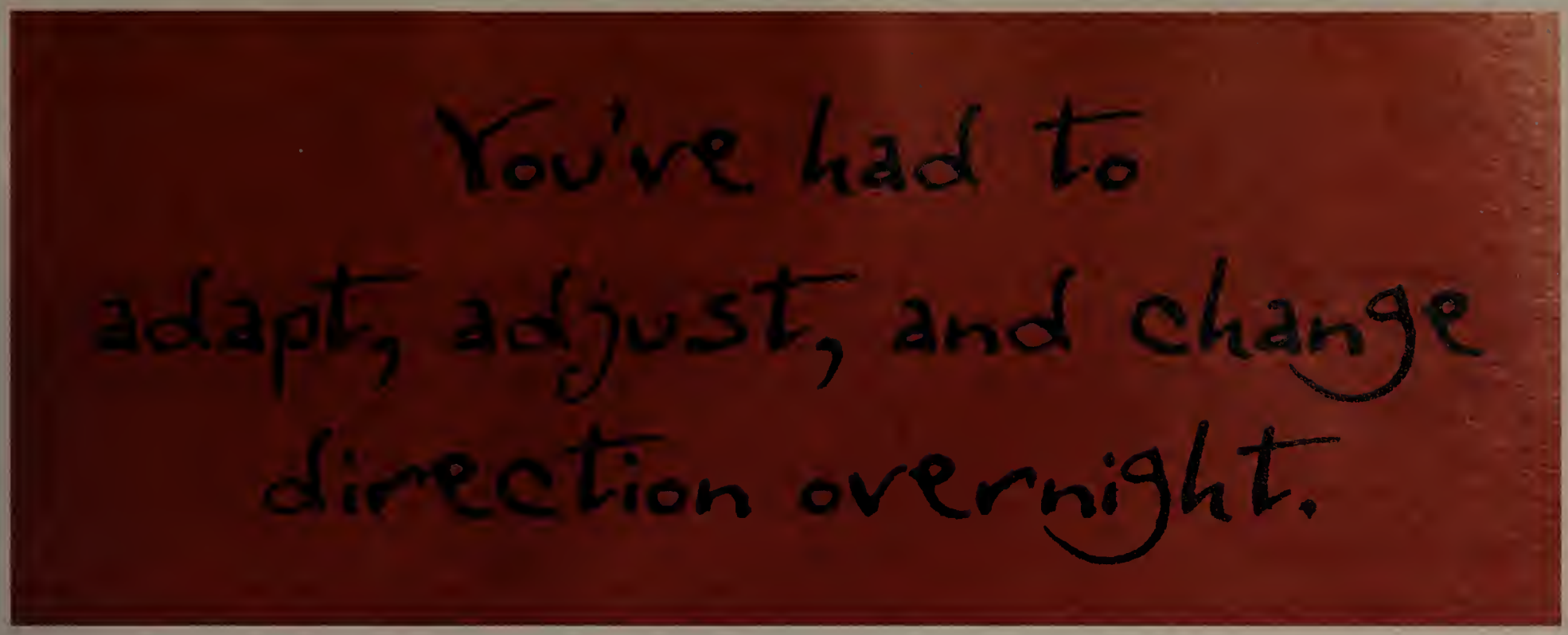
At that time, U.S. Robotics officials downplayed the problems, which some users said involved chronic overheating.

Troy Kent, information technology specialist at utility company Entergy Services, Inc. in Gretna, La., said Entergy had serious problems with Courier PC Card modems in laptops because of overheating. Once the laptops became warm, the modems would shut down transmissions, Kent said.

This summer, the company received replacements for the faulty cards, but "only after a lot of blood was spilled in the streets," he said.

"We had to rip and tug at U.S. Robotics," Kent said. Finally, the company's reseller, Ultimate Marketing, Inc. in Harvey, La., negotiated the replacement, Kent said. Since that time, the new Couriers have not caused problems, he said.

& **New notebooks** are coming with faster chips, Windows NT. See page 50.



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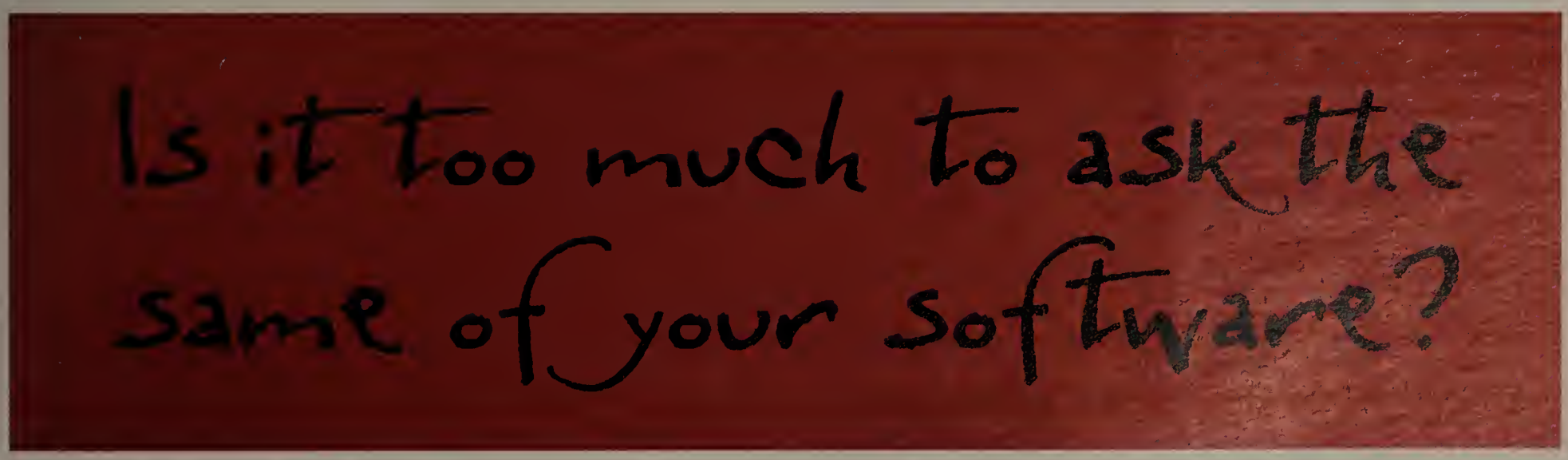

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Computer Industry

Growth slows in PC market

Compaq, IBM, Dell gain market share

By April Jacobs

The worldwide PC market grew by about 16% in the third quarter this year, compared with the third quarter last year, according to International Data Corp. (IDC) in Framingham, Mass.

Although 16% sounds impressive, it is actually the slowest rate of increase in the market in five years, according to IDC. And the growth rate is expected to get slower.

Compaq leads the way

Top PC vendors by shipments in Q3 1996

Vendor	Units shipped	Percent share	Percent change*
Compaq	1.76M	10.5%	27%
IBM	1.5M	9%	30%
Packard Bell/ NEC	955,000	5.7%	-16%
Apple	932,000	5.6%	-26%
Dell	750,000	4.5%	55%

* From Q3 1995

Source: International Data Corp., Framingham, Mass.

Compaq Computer Corp. remained the market share leader for the fourth consecutive quarter, according to IDC. The merged Packard Bell and NEC Corp. operations and Apple Computer, Inc. lost ground to Compaq, Dell Computer Corp. and other vendors.

Kevin Hause, a research analyst at IDC, said demand for PCs was driven by consumer Internet users and businesses upgrading in anticipation of moving to Microsoft Corp.'s Windows NT.

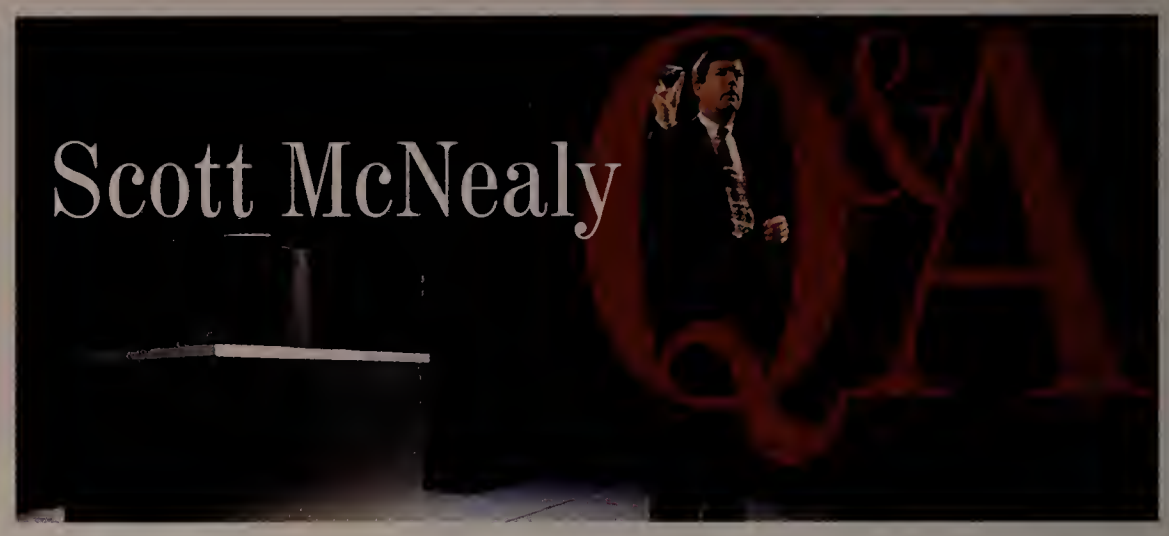
"You also have better price/performance," Hause said. He said prices for memory and components have declined.

"We're also seeing a whole new array of low-end systems that offer Pentium performance, network management and good configurations for pretty cheap prices," Hause said.

Bill Schaub, a research director at Dataquest in San Jose, Calif., said lower price points have also helped raise expectations for this year's fourth quarter.

Schaub said last Christmas, a low-end machine sold for about $1,600. It now costs about $800.

Schaub agreed that worldwide PC growth rates are also slowing down as the base grows. He said there are already about 22 million PCs in the U.S., 8 million of which are in homes.



Computerworld *senior writer Sharon Gaudin interviewed Sun Microsystems, Inc. CEO Scott McNealy last week in New York at the debut of Sun's JavaStation network computer.*

Q Will network computers replace dumb terminals or PCs?

A The earliest models replace [dumb terminals]. And they'll replace the PC.... Why have a full-blown PC there? Why does a bank teller need to have a PC? Does she need [Microsoft] Word or Excel?

A Gap store or a car dealership can all use a Java kiosk. They don't need a spreadsheet.

Q If Sun's network computer doesn't make a dent in PC sales, will that slow the Java juggernaut?

A We can embed Java in other computing environments — in cellular telephones, thermostats, machine tools, cars and servers. Even if we get a reasonable amount of that environment, it would be insurmountable.

Q Will users accept the idea of giving up their application-rich PCs?

A What are they losing with a [network computer]? You download applications, and you run them. You keep the applications you want in main memory. There's no difference.

You're not losing independence. You'll have more time to play games because you don't have to back up your system or download application updates.

And if you want to get work done, you can do that, too.

Q How will this affect the IS department?

A Businesses will still create their own applications. We tell IS to keep it up and running. It's not their job to create or buy the applications for it. We don't take that away from the business.

Q Will Sun eventually add Microsoft's ActiveX to the JavaStation?

A No, we won't add ActiveX.

It's inherently a single platform... If you write in Java, you run on any computer in the planet. You write in "CaptiveX," and you're trapped in Windows. Customers won't have to choose.

That's the beauty of Java. You don't have to unplug Novell or the Mac or Windows. You just write on a different level. With Java, they can get it all, including Windows.

New captain must return networking vision to Bay

Intel veteran David House takes the helm at struggling internetworking vendor

By Bob Wallace

Bay Networks, Inc.'s new top gun hopes his enterprise focus will put the company back on track.

David House, a 22-year veteran at chip giant Intel Corp. and most recently senior vice president of Intel's enterprise server group, has been named chairman, president and CEO of the struggling internetworking company.

Users and analysts have maintained that Bay needs a captain with networking vision.

"Many users are concerned that with Bay's [recent] acquisitions in the dial-up market and emphasis on selling to service providers, [its] networking direction is becoming diluted," said Ken Martig, systems administrator at Zymogenetics, Inc. in Seattle. Zymogenetics tests and manufactures pharmaceuticals.

David House *headed Intel's server division*

"They're trying to become a total network provider, which is taking away from [their core competency] in hubs, routers and switches," he said. Martig attended a recent Bay user group meeting and said that was a top concern among attendees.

Cautious optimism

House succeeds former CEO Andy Ludwick, who resigned recently.

Paul Severino will step down as chairman of the board of directors but will remain on the board.

One analyst said he was cautiously optimistic. "It's heartening that Bay went with someone from a company that knows networking," said Skip MacAskill, a senior research analyst at Gartner Group, Inc., a consulting and research firm in Stamford, Conn.

"Judging from his background, [House] may be able to bring more of an enterprise focus to Bay, which would help the company get back on track," MacAskill said.

Check out our Web site (www.computerworld.com) for a full interview with David House.

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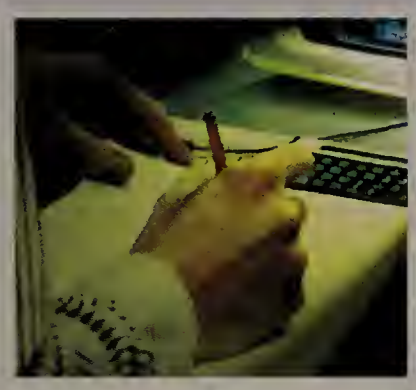

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Viewpoint

Opinion

Changing the game

That whoosh of air you heard early last week wasn't the first blast of winter wind. It was the passage of a giant software company rushing to play leapfrog with vendors of a technology it had ridiculed.

In this case, the maligned technology is the network computer, which Microsoft officials, until last week, roundly derided as a Bad Idea that Users Will Not Accept. Yet, IS managers who perceive the cost-saving potential have deemed network computers a Good Idea. They have done so in numbers large enough that Microsoft feels threatened and is once again willing to realign its principles and resources.

That's hardly a surprise. Microsoft has made an art of turning its back on new ideas until they start to take off, then trying to redefine the technology so it revolves around Windows. Remember when DOS was king and even Bill Gates thought no one would ever need more than 640K of memory? Remember the CORBA vs. OLE object wars? More recently, how about Java vs. ActiveX and Navigator vs. Internet Explorer?

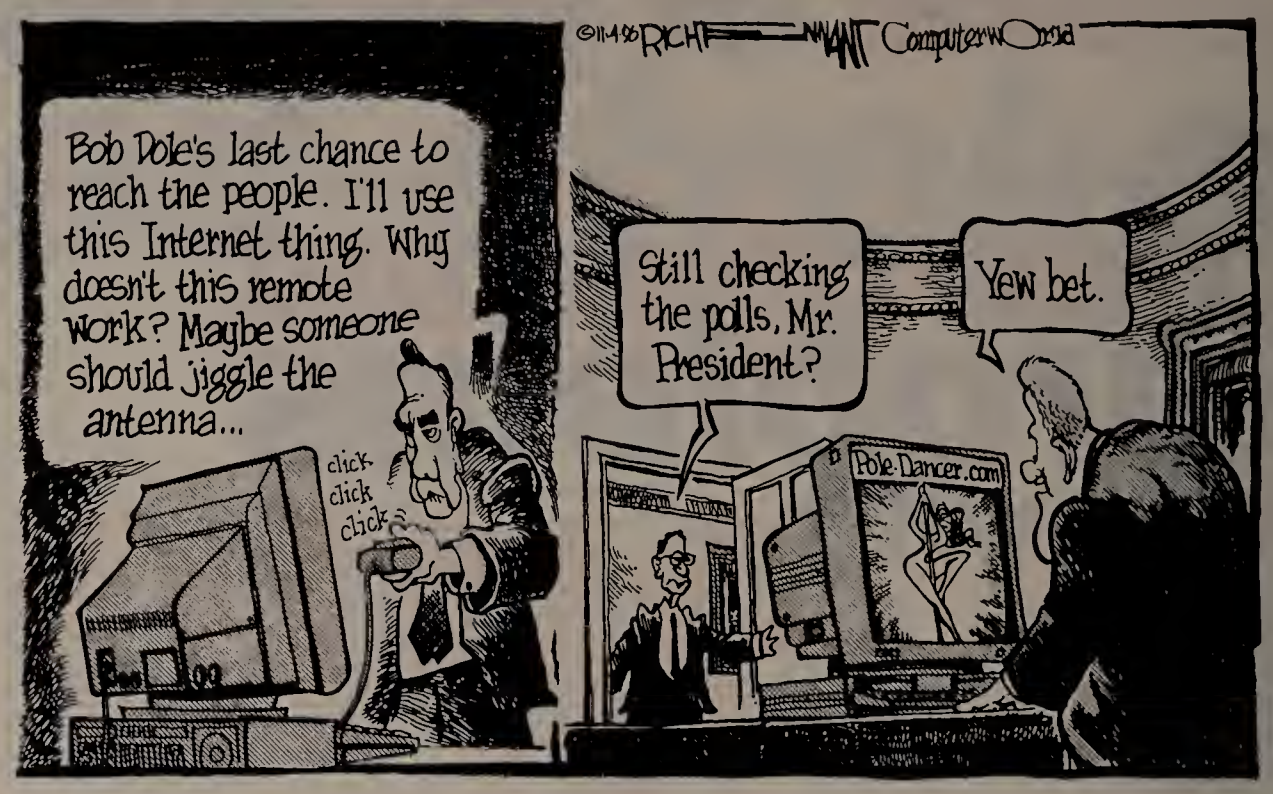
Microsoft's announcement last Pearl Harbor Day that it is now "hard-core about the Internet" was very impressive, except to people who wish it were still hard-core about the enterprise. Intranets are hot, but many more large companies are looking for stable, scalable application servers and E-mail systems than are trying to build intranets.

Microsoft went all out to convince large IS shops that products such as NT Server and Exchange were ready to play at the enterprise level. Gates and his lieutenants personally went door-to-door among the Fortune 500, promising stability, manageability and scalability for Windows NT and Exchange.

But when was the last time you heard anything new about either one that didn't have to do with a World Wide Web interface?

Microsoft is doing a good job competing with the newest and coolest of the intranet kids on the block. But if it continues to try to race ahead of every bleeding-edge competitor, it's going to leave its more stable enterprise customers standing on the sidewalk, fuming about their nerdy playmate who took off without finishing the game.

Kevin Fogarty, *Technical sections editor*
Internet: *kevin_fogarty@cw.com*



Letters to the editor

On average, CIOs may have worries

The story of a statistician who drowns in a river that is on the average two feet deep is told in every introductory class on statistics. Confusing the average depth with actual depth could lead to perilous misunderstandings.

Computerworld dived in to uneven waters in its interpretation about the meaning of averages in "Career Isn't Over" [CW, Sept. 16]. You concluded that the career of a chief information officer isn't as perilous as has been alleged because, on the average, it is 6.6 years. Numerically, that is correct. Unfortunately, the average tenure of any position isn't a realistic measure of on-the-job expectancy.

Averaging the on-the-job time of very-long-tenured CIOs with the on-the-job time of short-lived CIOs will always yield an average time that is much larger than the time a newly minted CIO can expect to survive. There is nothing wrong with the *Computerworld* statistics, except for the conclusions. It offers a mistaken sense of security. A newly appointed CIO wouldn't be smart to bet on holding the job for six years or longer.

Paul A. Strassmann
New Canaan, Conn.
Consultant,
Computerworld *columnist*

Just who started the shoving match?

It seems that the flap between Cisco and Cabletron is creating some press ["Users caught in Cisco, Cabletron sniping," CW, Oct. 21], and the writers of the articles are trying to spread the responsibility for the flap equally between both companies.

Obviously, your writers aren't familiar with the other antics of Cabletron. I have been following the ads that Cabletron has been placing in some of the trade magazines and find them to be in very poor taste and unprofessional. The type of behavior that Cabletron has exhibited during this advertising campaign cannot be considered in the company's best interests.

If a partner turns on you, can you be expected to continue to do business with them? No! I would expect Cisco to do exactly as the company did. And justifiably so.

Frank Skorupski
Nashua, N.H.
73457.2711@compuserve.com

About the Cabletron vs. Cisco catfight. What did all those concerned Cabletron users expect? Good behavior? Concern for customers? If you play with an unethical company and get burned, blame yourself.

And yes, all the users of Cabletron equipment have a say: There is E-mail, there are telephones, there is the U.S. Postal Service.

Tell the hooligans to clean up their act and make nice with Cisco. Otherwise, you have no reason to complain.

Julius Szelagiewicz
Director of information systems
Turtle & Hughes, Inc.
Linden, N.J.

More letters, *page 36*

Any group could be tracked next

Computerworld's Sept. 2 article ["Feds to track sex offenders with database"] is rather scary when put into the context that it is now 12 years after George Orwell's prophetic *1984*.

The overused argument for government action — that the end justifies the means — ignores the concept that databases in the hands of governments can become potent instruments of control.

Information is power, and power corrupts. The technology gained by the development of the sex offenders database might easily be used next, by those in power, to track other folks not currently popular with the authorities: gun owners, cigarette smokers, encryption scheme developers/programmers. . . .

Alan Richman
Diverse Developments
Tarzana, Calif.

■ Computerworld welcomes comments from its readers. Letters shouldn't exceed 200 words and should be addressed to Maryfran Johnson, Executive Editor, Computerworld, PO Box 9171, 500 Old Connecticut Path, Framingham, Mass. 01701. Fax number: (508) 875-8931; Internet: letters@cw.com. Please include an address and phone number for verification.

Patricia B. Seybold

Holy Grail: A single point of contact

The goal is having all customer data in one place. Middleware can make it happen.

From Singapore to Kansas City, the corporate mantra is to give customers one point of contact.

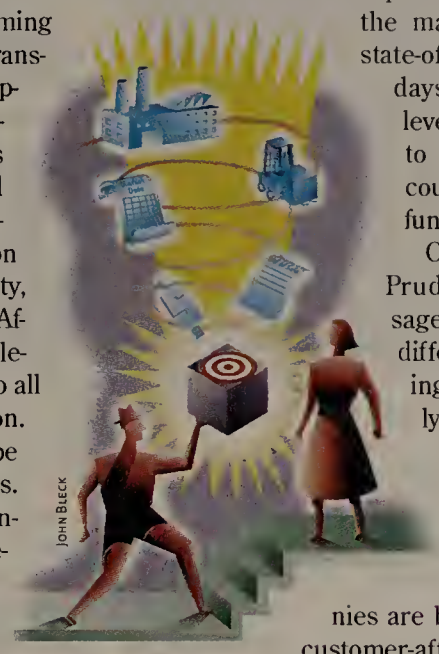
Manufacturers want to answer customer inquiries, schedule service calls, up-sell and cross-sell in a single interaction. Governments want to let people and businesses pay taxes and fees, apply for permits and obtain visas, passports and birth certificates at one time — regardless of the different agencies involved. Communications companies want to handle customers' wireless and wireline business with a single point of contact. Financial services firms want to handle customers' pension plans, stocks and checking and saving accounts during the same call.

Layers of communication

How are companies tackling this newfound requirement? All the diagrams being drawn on whiteboards around the world are virtually identical. At the top layer are all the different ways in which customers might some day choose to interact with our organizations: telephone, fax, kiosk, World Wide Web, interactive TV and the like. The second layer contains the magic software — the middleware — that ties together all the relevant customer information and applications. The third layer has boxes that depict all the existing and new systems that have some information relevant to serving customers.

It's that magic middle layer that's giving people problems and making them doubt the wisdom of continuing their quest.

In theory, implementing middleware is a piece of cake. In practice, it's quite difficult. It requires application programming interfaces and the ability to translate data as it moves among applications. It requires managing the transactions, messages and requests that fly back and forth across applications. It requires database and application security, as well as reliability, without creating bottlenecks. After all, you're asking the middleware to handle single sign-on to all applications in your organization.



The architecture also must be able to scale up to megasystems. You may start with a few hundred customer service representatives, but you're building this to handle tens of thousands of customers coming at you across the Web.

The bad news is that using middleware to link together disparate applications on an enterprise-wide scale isn't a trivial undertaking. The good news is that once you've done it, the payoffs are clearly there.

Ask San Francisco-based Wells Fargo & Co. Back in 1993, it used object request broker middleware to pull together information for customer service representatives. Then, in March 1995, the marketing department wanted a state-of-the-art Web site. In just 45 days, the IS department was able to leverage the existing infrastructure to let customers access their account information and transfer funds among accounts via the Web.

On the other side of the world, Prudential Australia has used message-queuing middleware to link its different insurance policy and billing applications and has laboriously scrubbed its composite customer data. Now it can deliver easy-to-use, front-end applications for salespeople, public kiosks and Web customers.

All over the world, companies are beginning to link together their customer-affecting applications with middleware and offer customers a single point of contact. Isn't it time you started your quest for this Holy Grail?

Seybold is president of Patricia Seybold Group in Boston. Her Internet address is pseybold@psgroup.com.

Michael Schrage

When new systems ruin the corporate ecology

Get an "organizational impact statement" to smoke out the political issues.

My father frequently warned: "Be careful of what you want because you're sure to get it." The sad saga of my sordid desires are best left for other columns. But Dad's advice seems particularly poignant in light of the growing number of IS managers desperate to demonstrate just how "aligned" they are with business objectives.

For eminently logical reasons, a highly regarded software firm decided to provide a link between its customer technical support unit and its software developers by giving developers access to the support database. The idea was to let the developers see what kind of issues sprang up in the real world and to give technical support easier access to the people who might bring useful insights to bear on interesting customer problems.

Sometimes a new system creates more problems than it solves.

In the past, customer-support data was reviewed on a biweekly basis, and communication between tech support and the developers was highly structured. The interlinked databases — coupled with tracked responses to electronic-mail inquiries — turned intergroup communications into a daily phenomenon.

Guess what? A cordial and fairly effective professional relationship between the two groups collapsed into an organizational mess. The developers quickly grew annoyed with their daily electronic missives from tech support. Tech support workers soon became disenchanted with what they felt was dismissive behavior by the developers. The belief that more communication would promote collaboration and lead to faster turnaround on bug detections and corrections proved 180 degrees off. The new system had created more problems than it solved.

Why didn't management anticipate this sort of worst-case scenario? There are two equally obvious answers. The first is cynical; the second is standard.

The cynical answer is that management entertained the possibility of problems and dismissed it, figuring employees would work out problems on their own or, if they didn't, management could step in. After all, don't managers get better rewarded for fixing problems than they do for anticipating them?

The standard answer is that management didn't have a clue about what the organizational impact of the new system might be. Management doesn't think a lot about things such as managing change. Linking the two groups seemed sensible. The technical implementation costs seemed reasonable, so why not? If no one complains too much in advance, what's the big deal?

In truth, IS groups are doing a disservice to themselves and to clients by their willful, cynical or ignorant mismanagement in deploying internal networks and other new applications. Much as the Environmental Protection Agency once demanded an Environmental Impact Statement when companies proposed building something that might transform the local ecology, IS groups should request an OIS — an Organizational Impact Statement — that documents how a new system might affect organizational ecology.

That's not to say an unenthusiastic OIS should kill off a promising idea or even force changes in the specifications. But this might be a useful approach to force the relevant parties to actually think beyond the features, benefits and technical design issues of the proposed project. Role-playing with a prototype might help identify problems early. The fact that most systems groups and their clients believe "requirements analysis" and/or rapid prototyping will somehow capture these concerns demonstrates why so many new applications run into organizational buzz saws when they're finally deployed.

An OIS — whether formal or informal — is an opportunity to make sure that you're being careful about what IS and its clients want.

Schrage is a research associate at the MIT Media Lab and author of *No More Teams!* His Internet address is schrage@media.mit.edu.

Letters to the editor

A beta with bugs isn't quite news, you know

Articles such as "Users still bugged by Explorer 3.0" [CW, Oct. 14] do not belong in your publication. While the basic subject may be important and interesting, the approach is irresponsible and misleading. The Windows 3.1 version is a *beta* product. The quote attributed to Kevin Thomas is ridiculous. Because the product is beta software, you cannot make the comment that it was shipped before it was ready — it hasn't been shipped yet.

Beta software is by definition buggy and therefore has a significant risk associated with its use. To pretend that people should expect a polished product when they download a beta version of something is to do a major disservice to the industry. Worse, I cannot recall a single article in *Computerworld* trumpeting the disastrous betas foisted on the public by Netscape — a far more common topic of discussion in those same Usenet newsgroups mentioned in this unfortunate article.

This same type of useless bashing-the-bad-guy-of-the-week caused me to drop my subscription [to another publication] a few years ago and switch to *Computerworld*. I sincerely hope I will not be faced with the same decision next year when my *Computerworld* renewal comes due.

Jon McGuire
Norcross, Ga.
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Is Microsoft a predator or a normal business operating in normal ways?

Computerworld columnist David Moschella's "Tyrannosaurus Gates, market predator" article [CW, Sept. 9] was amusing. It hasn't even been a year since Microsoft's market domination was viewed by all the trade papers as a good thing, usually with flowery phrases about "standardization," "suites/ease of use," "fewer support problems" and so on.

Now, all of a sudden, Microsoft's market domination is being presented as a bad thing, like maybe it just occurred to all those same journalists that if Microsoft is the only platform left, how would all you "industry watchdogs" stay in business?

Kelly Challeron
Skokie, Ill.

Congratulations on a courageous stand. The title was catchy and right on target. The industry press made the Microsoft myth, and there is still some hope that it can strip it down to reality. I have two suggestions: First, bypass the vendor's propaganda and just relate the truth; second, check to see if the Robinson-Patman Act is still in effect.

Concerning the first, I have seen so many lies and half-truths about Unix vs. DOS/Windows that I question how many people have the guts to dig for the real truth. Microsoft has always made the comparison between its low-end Intel-based machines and high-cost RISC boxes. Force it to be honest by requiring that all comparisons be made on the same Intel-based equipment.

As for the Robinson-Patman Act, if it is

still in effect, Microsoft's violations are so brazen that it could be hit by thousands of suits. Perhaps *Computerworld* could perform a public service by investigating successful Robinson-Patman actions and making comparisons with Microsoft's behavior in the market.

Phil Duffy
West Chester, Pa.
eleccott@pond.com

The limited facts you presented in "Tyrannosaurus Gates" may be true, but the argument comes off as shrill and unprofessional when David Moschella, as a research expert, leaves out half the story and misses the main point.

Software is an industry where even the little bunnies are predators, and they don't stay little for long. Success belongs to those who remain focused. I believe the facts of Moschella's article add up to a properly focused Microsoft. But then, Moschella knows that. After all, he's senior vice president of research at Computerworld, Inc.

I suspect there's something emotional that's fueling Moschella's public dislike of Microsoft. That might make a good story. This did not.

Bob Forgrave
Kirkland, Wash.

David Moschella's column on "Tyrannosaurus Gates" shows that even supposedly knowledgeable industry people can start spewing leftist-leaning, liberal business BS. Moschella says Microsoft is giving away products that compete with its rival's core products. Microsoft did not set the precedent here. When [IBM's] OS/2 Warp was released, it included a rudimentary browser and the ability to get onto the Internet using [IBM's] Advantis Network. Most Unix operating systems have included Internet access from the start, but no one cried out about that.

Microsoft's greatest innovation is the making of Windows and the effective marketing of it. Windows 95 may be Mac OS '84, but I bet 40 million copies [of the Macintosh operating system] were not shipped in the first 10 years. Moschella and his ilk should stop worrying about Microsoft's business moves and worry about seeing if the public is well-served.

John E. Obeto II
Moreno, Calif.
johnny_o2@msn.com

I work as a computer support technician part-time while going to school full-time. I recently read your article "Tyrannosaurus Gates, market predator," and I commend you for your insight into the Microsoft problem.

Microsoft and Bill Gates have done a world of good for the computer software industry, but they are taking it too far. The first time I loaded up Internet Explorer, it amazed me how similar the browser was to Netscape Navigator. Whether Internet Explorer is free or not, I don't plan to use it unless I have to. I am a proud payer of the Netscape browser, and I pray Netscape can fend off the predator Microsoft.

Greg Householder
Columbus, Ohio
ghouseho@norse.com

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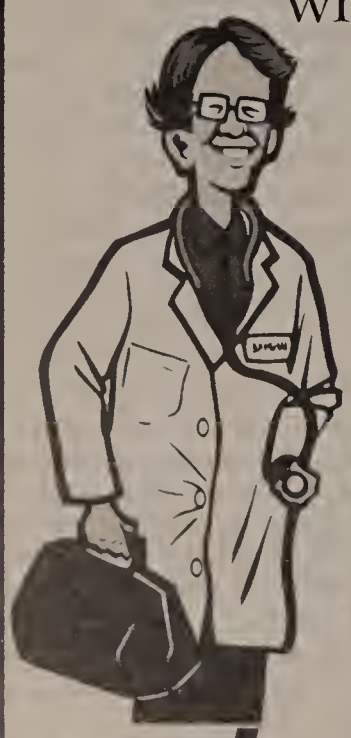

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NT has nothing to do with Unix advances

In *Computerworld*'s Sept. 23 issue, there was a small, insightful article ["Big Unix iron: NT servers prompt vendors to challenge mainframes"] regarding present and forthcoming 64-bit chips by various manufacturers, along with the Unix operating systems that will accompany those boxes. The power that these machines will have will be phenomenal, and they are eagerly anticipated by many customers of Unix machines.

But for the author to suggest that the reason these machines are forthcoming is because of the presence of Microsoft's Windows NT is ludicrous. Unix has been running on 32-bit machines for many years. It's only natural to increase speed, performance and functionality as new 64-bit technology arrives.

Every industry — the automobile for example — strives to build improved products as technology allows, and the Unix industry is no different. I doubt the introduction of the Porsche was due to the presence of a Chevy.

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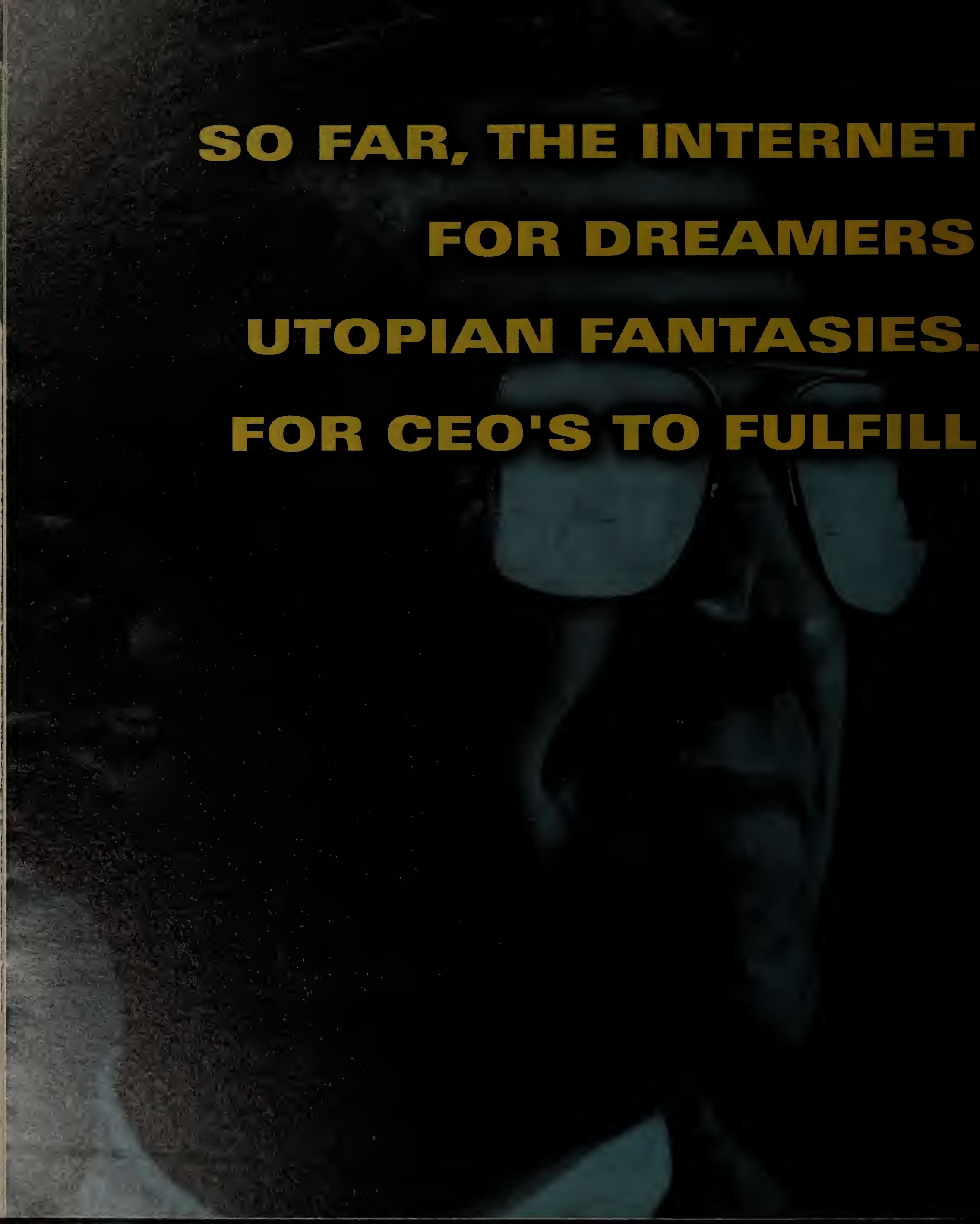
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Browser wars really do matter

Regular readers of this column know that I think Netscape is all that stands between Microsoft and control over the very core of the software industry. I even think it's in customers' long-term interests to factor this into their individual buying decisions. I wonder how many agree.

This doesn't mean Netscape can do no wrong. Recently, Netscape executives and several industry pundits have been floating the idea that browsers actually don't matter very much; the real action, they say, is on the server. And this is where Netscape must make its stand, they say.

This argument is flawed on all fronts. Given Microsoft's recent initiatives, Netscape won't hold its current 80% browser share, but it must do everything possible to stop it from falling below 50%. If that means Netscape must cuddle up to a sugar daddy so it can afford to match Microsoft's freeware and bundled OEM availability, so be it. If Microsoft grabs 60% of the browser market, it will probably go on to get 90%.

Should Microsoft regain the user interface, Netscape's server business will suffer. Remember how the Unix community used to say it could cede the desktop to Microsoft, but Windows NT would never dominate the server? Today's World Wide Web server software players show disturbing signs of repeating the same miscalculations.

For one thing, Netscape isn't as dominant in servers as many seem to think. Its share within the world's largest corporations is very strong. But these highly visible successes mask huge Microsoft gains in the broader corporate market. In the third quarter this year, *Computerworld* surveyed 1,100 large and midsize companies that have a home page; 33% said Netscape is their primary Web server software vendor vs. 28% for Microsoft. Mr. Gates and company are closing fast.

Web server software has come to resemble Unix in another depressingly familiar way. Microsoft's key competitors — Netscape, IBM/Lotus and Novell — all offer their own Web servers, electronic mail, groupware and directories. As in the Unix business, a total lack of vendor cooperation has greatly increased the appeal of Microsoft's single-vendor approach.

Netscape's biggest strategic risk has always been tied to its immense ambition. For example, if it didn't sell groupware and directories, it could work with Lotus and Novell in the way it now works with Oracle. But in reality, Netscape's broad product offerings have prevented the needed alliances from developing, effectively leaving Netscape to face Microsoft by itself. Given this and the fact that Navigator defines so much of Netscape's market presence and brand, there is one conclusion: As its browsers go, so goes Netscape.

David Moschella

Netscape will be sorry if it focuses only on servers.

Moschella is senior vice president of research at Computerworld, Inc. in Framingham, Mass. His Internet address is david_moschella@cw.com.

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Compaq unveils its Pentium Pro workstations, 49

Bruegger's Bagels *franchisee and former champion cyclist Greg LeMond is sticking with the AS/400*

IBM entry-level systems vie for Win NT shops

By Tim Ouellette

IBM is trying to lure users away from the siren song of Windows NT Server by offering new entry-level AS/400 and RS/6000 systems.

The systems give users more performance for the price and also could be attractive as World Wide Web servers for corporate departments or remote offices, analysts said (see chart, page 49).

Observers said the AS/400 Advanced Entry 150, which will ship this week, will look different to some users. The midrange platform with an integrated database and management tools isn't normally associated with smaller office locations.

That should help the AS/400 compete against Microsoft Corp.'s Windows NT, said John Black, president of medical software developer Pace Financial Corp. in Cincinnati.

Low-end systems

"The reason I like AS/400 in this environment is I don't have to deal with configuration files on the server" and don't need more information systems staff, he said.

Built-in advantage

Greg LeMond, former champion cyclist and now an owner of an expanding string of Bruegger's Bagels shops, agreed. During the Model 150 unveiling, he pointed out that all the software he needs to manage the shops is built in from the start and takes advantage of the 64-bit processor speed.

LeMond, who runs franchisee BruWest Enterprises LLC, plans to open 50 more bagel stores next year. The AS/400 will replace the company's PC-based application that manages business data. The LAN system couldn't scale up to handle expansion plans, LeMond said.

The Model 150 comes with the latest version of the OS/400 RISC operating system (Version

IBM, *page 49*

Can the NC deliver?

By April Jacobs and Sharon Gaudin

Information systems managers may be waiting for the arrival of the much-touted network computer, with its promises of lower costs and less support needs.

But a question remains: Will end users willingly give up their PC, their personalized applications and possibly one of their few sources of power in the workplace?

"The [network computer] will eliminate a lot of headaches for [IS]," said Larry Hagerty, a senior systems analyst at GTE Data Services in Tampa, Fla., which has been taking Sun Microsystems, Inc.'s JavaStation for a test drive. "I don't know what our people will think ... But I tell you, about 1 o'clock this morning when my Windows 95 crashed, I was ready for a network computer."

Network computers are having a kind of coming-out party, with Microsoft Corp., Sun, IBM and Oracle Corp. unveiling versions of the thin-client, server-centric machines. Billing it as inexpensive to buy and even less expensive to run, Sun last week unveiled its $750 JavaStation amid grand hoopla in New York. Oracle and IBM are expected to deliver their products in the next few weeks.

And not to be left out of the game, Microsoft last week announced it will release the NetPC — a cheaper, thinner version of the Windows machine that virtually bought the company the corporate desktop.

Network computers

Pros
Let IS managers manage applications centrally
Are a good way to standardize hardware and software
Are cheaper than PCs
Cons
Don't support a lot of applications
Require smooth network connections

But some IS professionals say they question the network computer's ability to provide users with what they need — and what they have become accustomed to having.

Support issues

Neal Abrams, IS manager at Cosentini Associates in New York, said he wonders if any less support might be involved with network computers than in a client/server setup where most applications reside on the server anyway.

"It sounds the same as if you were running applications on the network server. It's not always best to do that, and it assumes you don't have a bandwidth problem," he said.

Abrams also questions whether users will accept not being able to load applications tailored to their specific needs.

"Not everybody is created equal, and you have different types of users" who may need or want specific applications, he said.

Managers also are being told that help is on the way for more manageable PCs that are easier to support.

CBS takes election night to Web

NEC client/server setup will provide real-time voting results on the 'net

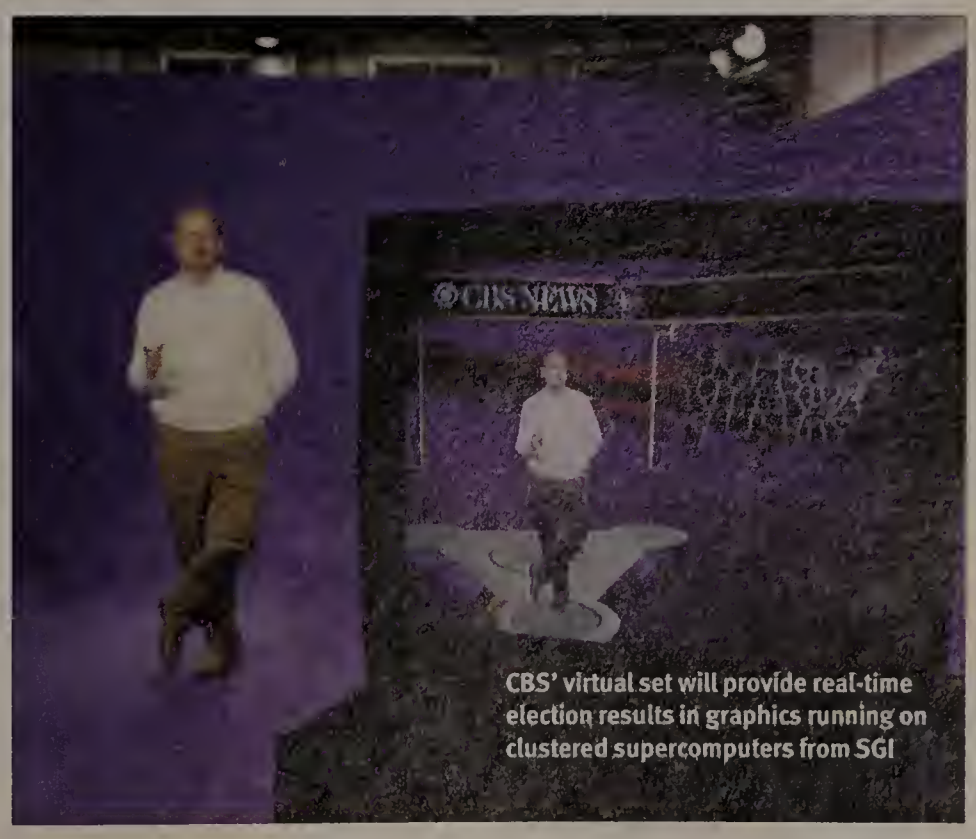
By Justin Hibbard

CBS News tomorrow night plans to post continuously updated election returns on its World Wide Web site via a new system powered by Pentium Pro-based servers. The online coverage could give CBS an edge over its competitors, but critics wonder whether real-time results will discourage late voters.

CBS' new client/server system replaced mainframe terminals used in previous elections and gives CBS analysts more controls for manipulating real-time voting information. The system will feed live results to anchorman Dan Rather's desktop, to computers producing graphics for television broadcast and to the CBS News Web site (www.cbsnews.com/campaign96).

CBS will use two NEC Corp. ProServa SH servers that run the Windows NT 3.51 operating system and Microsoft Corp. SQL Server database. The NEC servers

CBS, *page 49*



CBS' virtual set will provide real-time election results in graphics running on clustered supercomputers from SGI

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Power Computing swamped by Mac demand

Some users turn to Apple to fill void

By Lisa Picarille

Macintosh users have always hoped Macintosh clone makers would fill in the product void left by Apple's historically bad product forecasting. Ironically, users now have to turn back to Apple to meet product demand because of clone product delays.

Power Computing Corp., the most well-received of the Macintosh compatibles makers, is experiencing delays across its product line (see chart). Sources close to the Round Rock, Texas, company estimated the order backlog to be about $100 million.

Component supply

Power Computing officials attributed the delays to greater-than-expected demand and a shortage of key ASCIC components and certain PowerPC processors.

Macintosh compatibles

One user said Power Computing's inability to predict demand has been a source of frustration.

"We have been plugging through a major rollout [of Power Computing systems], and the horrible supply problems have made it very painful," said Mark Stelzner, editorial publishing director at Gruener & Jahr USA Publishing, a magazine publisher in New York.

In spite of the delays, Stelzner said he isn't ruling out buying clones in the future. "I am an opportunist, and we are not going to keep away from the clones. But I will need to be as conservative as possible in the lead times," he said.

For now, that means turning to Apple.

"Frankly, this is a commodity situation, and whoever has the right products and the right time will get my business. That means Apple in the short term," Stelzner said.

Power Computing is filling direct orders first. So users who purchase through catalogs and Macintosh retailers may have longer delays — sometimes as much as four months, a user reported.

Power Computing clones

	Low-end	Midrange	High-end
Clone	PowerBase	PowerCenter	Power-Tower/ PowerTower Pro
Availability	Ships in volume January 1997	2-week delay from date of order	2- to 4-week delay from date of order

Compaq stations debut

By April Jacobs

No. 1 PC maker Compaq Computer Corp. last week unveiled the first models of its Pentium Pro, Windows NT-based Professional Workstations. Prices for the workstations start at less than $5,000.

The company plans to aim its new line of workstations at what traditionally has been Unix territory: mechanical computer-aided design users, interactive content and software developers and financial professionals.

The workstations will feature Microsoft Corp.'s Windows NT Workstation 4.0, one or two 200-MHz Intel Pentium Pro microprocessors, integrated NetFlex-3 network interface cards, up to 512M bytes of memory, eight-speed CD-ROM drives, up to 4G bytes of hard drive storage, Wide Ultra SCSI controllers and graphics controllers.

Prices for standard configurations range from $4,300 to $10,200, according to the firm.

Prospective users said they welcome choices brought by competition but first want to see what they are going to get for their money.

"I'd be willing to see what's inside the box for the money, but reliability is important, along with there being nothing proprietary about the machines," said Neal Abrams, manager of information systems at Consentini Associates, a Dell Computer Corp. workstation shop in New York. Abrams said high-quality graphics must be part of any offering he considers.

Marketing is key

Karen Seymour, an analyst at International Data Corp. in Framingham, Mass., said one of Compaq's greatest challenges will be in establishing the right channels to market its workstations.

In Compaq's favor, however, is that users are leaning toward hardware providers with desktop, server and workstation offerings, such as IBM, Hewlett-Packard Co. and Digital Equipment Corp.

IBM entry-level systems vie for NT shops

CONTINUED FROM PAGE 45

3, Release 7) and includes built-in Web serving capabilities, the DB2/400 relational database and software for print management, faxing and decision support.

IBM officials said the cost of ownership issue between PC servers and the AS/400 will win over some users. But others said IBM could have played Microsoft's game and pushed the price even lower.

"IBM shouldn't try to make money off of [Model 150]; they should try to make market share," said Tom Bittman, an analyst at Gartner Group, Inc. in Stamford, Conn.

Bittman recommended pricing Model 150 in the $6,500 to $7,000 range to compete more strongly for mind share.

The new RS/6000 offerings also overlap with AS/400 to some degree.

The new boxes run the AIX 4.1.5 operating system and have been upgraded from 133-MHz to 166-MHz PowerPC 604E chips. They will even support Windows NT 4.0. Additionally, early next year, the boxes will ship with AIX 4.2, a version of AIX that will include Lotus Development Corp.'s Domino Web/Notes server for Internet hosting and access.

Observers said the hardware upgrades give users more reliable access and can support more users, compared with Windows NT.

How low can you go?

With new offerings in the AS/400 and RS/6000 lines, IBM hopes to take away some of the steam from the Windows NT juggernaut

Product	Features	Price
AS/400 150	64-bit processing, integrated database and Web server capabilities	$7,995
RS/6000 140*	Entry-level server for use as a Web server	$7,000
RS/6000 240*	Two-way SMP server	$9,995
RS/6000 F40*	High-storage capacity (81.9G bytes of internal storage) SMP workgroup server	$15,995
RS/6000 H10*	Rack-mount version of the F40 for transaction processing	$17,995

* Has a 166-MHz PowerPC 604E processor

CBS

CONTINUED FROM PAGE 45

will distribute information to about 100 PCs, a Web server and a cluster of Silicon Graphics, Inc. Onyx graphics computers.

The system will put real-time election results at Internet users' fingertips instantly, and that doesn't sit well with Shabbir Safdar, co-founder of Voters Telecommunications Watch, an advocacy group in New York.

> "It's how you process the information that makes the difference."
>
> — *Charles Auletto, CBS*

"We have a very good tradition of keeping the election results out of the public eye until the polls close, and that's a tradition that should be continued in the new medium," Safdar said.

CBS will apply its television policy to the Web and forgo projecting election outcomes online before polls close. But the network will post vote counts as soon as they start coming in, according to Dean Daniels, a manager at CBS' Web site.

Safdar said he believes Internet users will draw conclusions from the numbers without CBS' help. "It's a very old-media bias that without the analysts interpreting the results, people won't be able to interpret it themselves," he said.

Tight race

CBS is under pressure to deliver results fast because all three major networks receive the vote counts at the same time. An IBM mainframe operated by the Voter News Service in New York will feed voter tabulations simultaneously to CBS, ABC and NBC.

"Everybody's getting the information at the same time. It's how you process the information that makes the difference," said Charles Auletto, director of news data systems at CBS in New York.

In past elections, CBS analysts used AT&T Corp. terminals connected to the Voter News Service's mainframe, but the system gave them few options for manipulating data.

Laptops get NT; some prices dip

By Mindy Blodgett

A slew of notebook computer announcements in the past few weeks will offer users faster chip speeds, bigger screens and machines that are shipping preloaded with Microsoft Corp.'s Windows NT 4.0.

And some notebook PC prices are falling. For instance, IBM PC Co. recently announced a reduction in the price of its high-end 760 ThinkPad line. The price dropped from a range of $5,999 to $6,999 to a range of $4,899 to $5,399.

Industry observers said users should continue to see steady, if not falling, prices.

"As the price of memory continues to go down and competition continues to heat up, prices will stay low," said Phillip Redman, an analyst at The Yankee Group in Boston. But he said the intense competition "may lead to a shakeout next year and some vendors dropping out. When that happens, prices could creep back up."

Kevin Danehy, manager of workgroup applications at Millipore, Inc. in Bedford, Mass., said he is pleased that more leading notebook makers are offering built-in Windows NT capabilities.

Hitachi MX-Series notebook

PROCESSORS:
133-MHz or 150-MHz Pentium
RAM:
16M bytes
PC CARD SLOTS:
Two Type II or one Type III

"Although Windows NT is not that great for mobile users yet, it is the wave of the future," Danehy said. "If the hardware manufacturer is confident that NT will run [well] enough on laptops, it's worth taking a look at."

The recent notebook PC announcements include the following:

- Hitachi PC Corp. in San Jose, Calif., last week released its high-end notebook line, the MX-Series. The notebooks, which will be available next month, will cost between $4,299 and $4,799. They will offer 133- and 150-MHz Pentium processors and 16M bytes of RAM.
- Texas Instruments, Inc. in Temple, Texas, recently announced additions to its Extensa 600 notebooks. The notebooks will offer 120- and 133-MHz chips and will range in price from $2,299 to $3,799.

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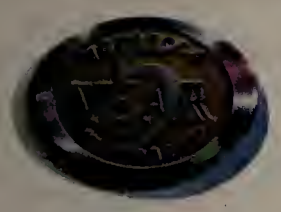

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Your first big Java project could be headed over a cliff, Frank Hayes warns, **59**

Software

PacifiCare's Jerry Silva *says data warehouse project will be worth it in the long run*

ALAN LEVENSON

Data 'carehouse'

By Charles Babcock

PacifiCare Health Care Systems, one of the nation's largest managed care providers, has learned there is no managed care without managed information. But until the provider built a data warehouse, it was difficult to get the information it needed to hold down health care costs.

Managed care providers sign up customers, such as large employers, by saying they will keep a grip on rising health care costs. But PacifiCare doesn't supply health care services. It reimburses doctors, medical groups and hospitals for their expenses.

With the data warehouse, PacifiCare analysts can track provider performance and confront them on rising costs.

A pharmaceutical company's sales force, for example, will promote a medicine that reduces side effects, even though it costs twice as much as a more-generic drug. "We'll say to the doctor, 'It only reduces side effects from 6% of the population to 4%. Why not reserve it for the patients who suffer side effects,'" said Ed Feaver, vice president of PacifiCare's Prescription Solutions subsidiary. The unit processes pharmaceutical claims from providers.

PacifiCare's first application for the data warehouse drew a bead on pharmaceutical claims, a well-defined area for which historical data already existed. The application produces regular reports on the expense norms for given drug treatments. The application also compares the use of generic vs. more expensive, formulary drugs.

In some cases, Feaver said, the use of expensive drugs is justified. In others, doctors prescribe drugs without realizing a less-expensive generic drug is available.

PacifiCare's reports on such issues go out to providers and become debated topics. Medical groups don't like being labeled as high-cost providers and often argue with PacifiCare's analysis.

"We get into these discussions all the time," Feaver said. "It lends credibility to have data" from the warehouse, he noted.

Data warehousing, *page 57*

Informix ships tools in bid to catch rivals

By Craig Stedman

Trying to fill some big holes in its product line, Informix Software, Inc. has introduced a series of distributed management and replication tools that can accommodate its own databases and those of its rivals.

Industry analysts said Informix has lagged behind competitors such as Oracle Corp. and Sybase, Inc. when it comes to tools — particularly for replicating information among dissimilar databases. The products represent its first

Informix, *page 55*

Informix's new database tools

PRODUCT	PRICE	AVAILABILITY
OmniReplicator for Informix	$595 per user	December
Enterprise Command Center	Not applicable; bundled with database	December for basic release; mid-1997 for Java-enabled version
WorkGroup and Enterprise Replication	Not applicable; both bundled with database	December

CA keeps objects out of Ingres

Will prime separate database for Internet and multimedia apps

By Craig Stedman

While the other big database vendors rush to marry relational and object technologies, Computer Associates International, Inc. is keeping the two from even going steady.

CA is leaving the Ingres database to rest on its relational laurels while the company develops a separate object database aimed at multimedia and Internet applications. The product, called Jasmine, is in beta testing and should be generally available by year's end, CA officials said.

'We want this [application] to be fun and not scare people when they get on it'

— Robert Wisse, InteleTravel

Jasmine flies in the face of the trend among CA's database rivals to add support for objects and other complex data types to their flagship relational products [CW, Oct. 21]. Customers of vendors such as Oracle Corp. and Informix Software, Inc. said the hybrid approach should fit their users' needs just fine. But many prospective Jasmine users disagreed.

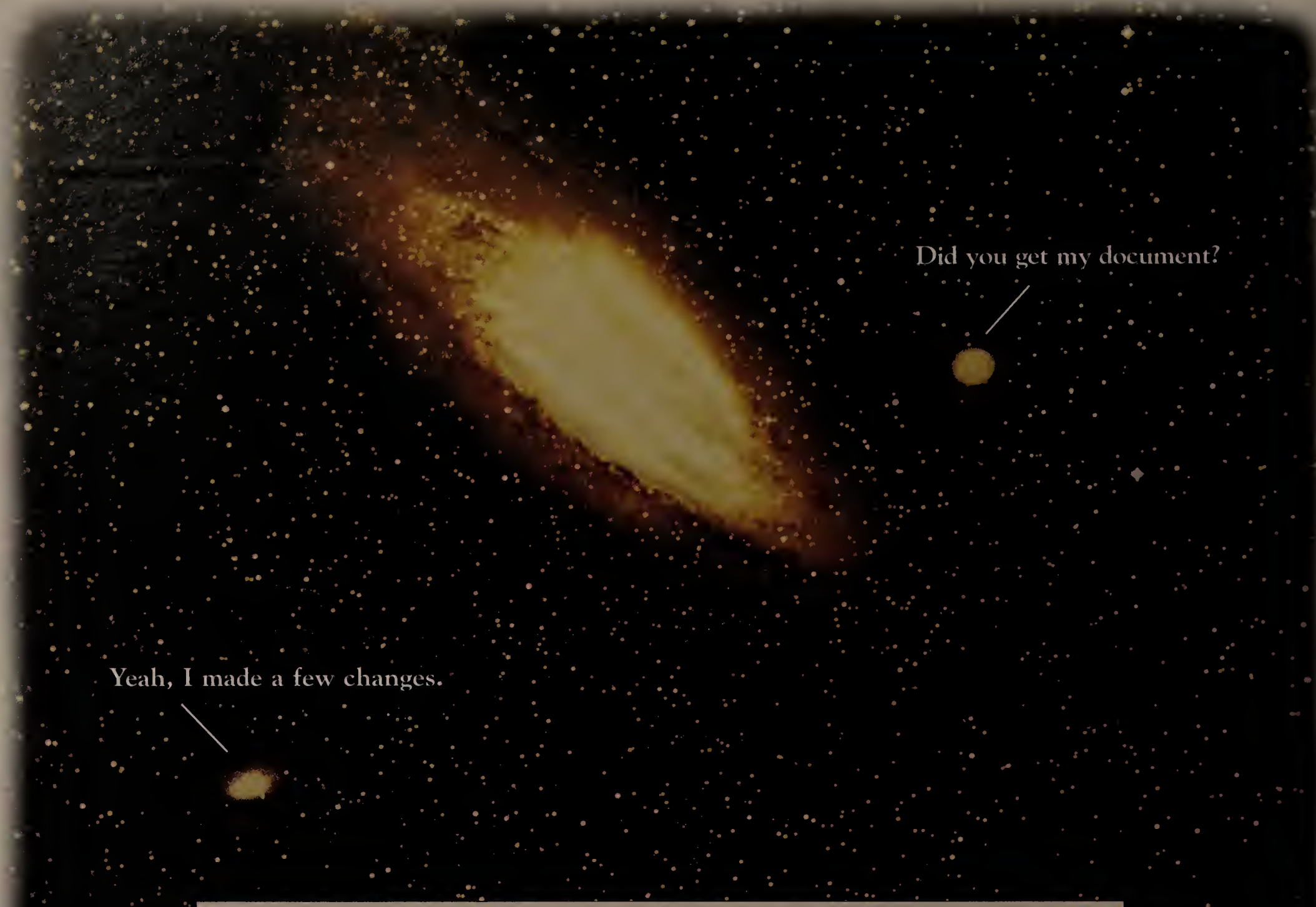
For example, InteleTravel International, a San Diego-based travel agency that uses home-based agents to sell trips, is developing a Jasmine application that will provide direct access to travel information via PCs and retail kiosks. Users will be able to price and book trips electronically while viewing color brochures or taking video "tours" of cruise ships and hotel rooms.

The multimedia support enabled by object technology is a crucial ingredient, said Robert Wisse, executive vice president of travel services at InteleTravel. The company's 50,000 agents typically "aren't surfing the Internet right now," Wisse said. "We want this [application] to be fun and not scare people when they get on it. With a relational database, I think it would be pretty boring."

The travel agency looked at the emerging relational/object hybrids, "but you're really compromising both ends" with that approach, said Jon Hugsak, a consultant who works for InteleTravel. "We just don't think you'd get the same performance that you would from a ground-up design centered around object data."

Financial Technologies International, Inc. also wants to keep relational and object technologies separate "so you can deploy each without

CA, *page 57*



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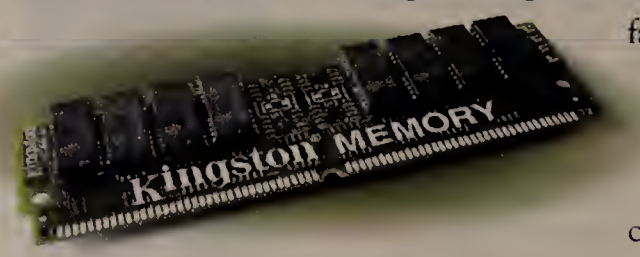

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New Products

Marcam Corp. has introduced Protean 2.0, an enhanced version of its enterprise resource planning software.

According to the Newton, Mass., company, the version adds Plant Planning and Quick Scheduler, which creates one integrated solution for process manufacturers to simultaneously plan for materials and machine capacity in multisite plants.

Pricing starts at $4,000.

▶ *Marcam Corp.*
(617) 965-0220
www.marcam.com

Hummingbird Communications Ltd. has announced Common Ground Desktop Edition Version 3.0, which brings DigitalPaper electronic document technology to Macintosh and Windows platforms.

According to the North York, Ontario, company, users can create DigitalPaper documents by printing from any Windows or Macintosh application. It costs $195.

▶ *Hummingbird Communications*
(416) 496-2200
www.hummingbird.com

Micrografx, Inc. has announced the availability of ABC FlowCharter 6 business diagramming software.

According to the Richardson, Texas, company, the software was previously available only as part of ABC Graphics Suite. FlowCharter 6 was designed to help businesses communicate concepts visually. It runs on Windows platforms, including Windows NT 4.0.

ABC FlowCharter 6 costs $299.95.

▶ *Micrografx*
(972) 234-1769
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Suites competition heats up

By Lisa Picarille

Competition in the desktop suites market is dramatically heating up as the three major players, Microsoft Corp., Lotus Development Corp. and Corel Corp., prepare to ship updated versions of their offerings early next year.

The increased competition among vendors could mean lower prices, improved product functionality, additional products and services in the suite offerings and more flexible licensing terms for users, observers said.

In the past year, Corel and Lotus have made aggressive moves to capture additional users from Microsoft, which dominates the suites market with 60% of units shipped and 84.5% revenue share, according to Dataquest, a San Jose, Calif., market research firm.

So far, each has managed to steal a small slice of market share from Microsoft by offering special promotional pricing and signing a slew of deals that bundle their suites with a variety of hardware systems.

Lotus plans even more aggressive moves to increase unit share to 30% by the end of the year and grow its revenue share of the market, according to John Throckmorton, senior vice president of Business Applications Development.

Suite spot

Lotus' initiatives to increase SmartSuite's unit shipments

- Start shipping in January
- Lower price from $149 to $99
- Deliver a Java version next year
- Offer flexible licensing programs
- Target Microsoft Office users who also have Lotus Notes
- Sign up more OEMs for SmartSuite bundling deals
- Increase product visibility through advertising and special promotions

Cambridge, Mass.-based Lotus plans to do the following:

- Ship a 32-bit version of SmartSuite 97 in January.
- Cut the price of the current version from $149 to $99.
- Sign up more OEMs for SmartSuite bundling deals.
- Increase product visibility through more advertising and special promotions.
- Deliver a Java version of SmartSuite next year.

In the past nine months, bundling deals and special promotions have helped Lotus increase its unit share of the suites market from less than 10% to 26.3%. But those giveways haven't helped increase Lotus' revenue, according to Dataquest, which estimates that Lotus has just 8% of the revenue share of the suites market.

Despite all Lotus' SmartSuite efforts, one user said his company, which uses Lotus Notes and has 4,000 users split evenly between SmartSuite and Microsoft Office, is thinking about standardizing on Office. "Over time, we are strongly recommending that users move to Office because we think that Microsoft has a better vision of the future," said Ralph Marshall, director of technological architecture for USAir, Inc.'s information services group in Winston-Salem, NC. "We plan to stick with Notes rather than move to [Microsoft] Exchange, and we don't think that any synergy Lotus claims between Notes and SmartSuite is readily discernible to our users."

To further entice users, Microsoft is also prepping a major upgrade to its best-selling Office suite. Office 97 is chock-a-block with new features and emphasizes document sharing, Internet access and easier access to features.

Aiming at Notes

Microsoft officials said the company plans to offer special pricing to users who upgrade from the previous version of Office and those who switch from a competitive suite product. Office 97 is also targeting Notes users by offering support for the NotesFlow facility of the groupware product.

Rival suites maker Corel is also planning to release Version 8.0 of its WordPerfect Office suite in the first quarter of next year, along with an updated release of its Windows 3.1x 16-bit version.

In the past nine months, Corel's $129 suggested retail price has helped its suite post a strong showing in the consumer retail market, with more than 50% market share, according to PC Data in Reston, Va. But the Ottawa developer has just 7.5% of units shipped in the overall suites market, according to Dataquest. Corel is readying a Java-enabled suite for the first quarter of 1997.

Informix

CONTINUED FROM PAGE 53

attempt to pull together an offering that customers can use to take control of their Informix databases across an enterprise.

At the heart of the expanded tool set is Enterprise Command Center, a central console that lets users manage multiple Informix databases via a Windows interface or a World Wide Web browser. Such a product has been a long time in coming from Informix, customers said.

Friendlier console

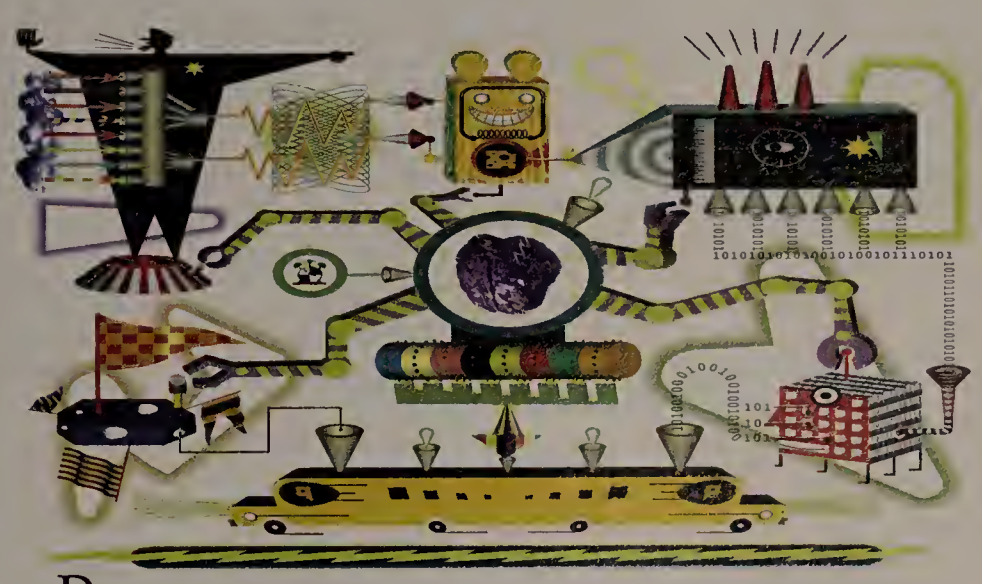
"We've been looking forward to having a more user-friendly management console. Right now, there isn't one," said Don Upton, a database administrator at MCI Communications Corp. in Colorado Springs. Upton manages an installation of Informix's OnLine Extended Parallel Server database.

Until now, Upton said, he has had to make do with a command-line interface for managing the parallel database. He witnessed a demonstration of an Enterprise Command Center prototype a few months ago, "and it should be better to have a point-and-click thing with red lights that flash and let you know if something is wrong," he said.

When a second version of Enterprise Command Center ships next year, customers will be able to write Java-based scripts that automate routine management tasks such as database backups, Informix officials said. The tool only manages Informix databases, but it is being integrated with third-party products from vendors such as BMC Software, Inc., Compuware Corp. and Platinum Technology, Inc. that can administer other database platforms.

On the replication side, Informix announced workgroup and enterprise tools for moving data among its own databases. It also plans to resell Praxis International, Inc.'s OmniReplicator software that will let customers do heterogeneous replication involving rival databases.

Distributed management and replication were areas where Informix "was not in sync with the market," said Stan Dolberg, an analyst at Forrester Research, Inc. in Cambridge, Mass. "Every company has got some mix of databases, and you want that to be a single logical environment," he said. Being able to share data across boundaries via replication is vital, Dolberg added.



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CA keeps objects out of Ingres

CONTINUED FROM PAGE 53

the baggage of the other," said Chuck Lewis, chairman of the New York financial software vendor. The company's trading applications run on relational databases, but it plans to use Jasmine to provide complex data analysis capabilities, Lewis said.

Jasmine is based on technology originally developed by Fujitsu Ltd. and now being jointly extended by the two companies. CA intended to combine the object-based software with Ingres, but it soon changed gears after it worked on the product.

Analysts said that wasn't a hard call given Ingres' standing with users. CA was fourth in the relational database market last year with a 5.7% share, and IBM's DB2 is challenging it, according to International Data Corp. in Framingham, Mass.

CA "is so insignificant a player in the relational market that it has little to lose" by going down a separate object database path, said Stan Dolberg, an analyst at Forrester Research, Inc. in Cambridge, Mass.

Meanwhile, CA's size and user base could give it an advantage against smaller object database vendors such as Object Design, Inc. and Versant Object Technology Corp. But prospective Jasmine users should be cautious because CA "doesn't really have a history of writing its own products," said Natasha Krol, an analyst at Meta Group, Inc. in Stamford, Conn.

Object databases

Pros	Cons
• Multimedia data support	• Steep learning curve
• Fast on complex queries	• Immature technology

Hybrid databases

Pros	Cons
• More familiar to users	• Potential performance hits
• Support for transactions	• Integration not proved

Data warehousing

CONTINUED FROM PAGE 53

Jerry Silva and his data warehouse development team built the pharmacy claims analysis system to replace a decision-support system that had been running as a PC application in the Prescription Solutions unit. The amount of data needed had overwhelmed Borland International, Inc.'s Paradox, Feaver said.

Silva last April consolidated 16G bytes of data from pharmaceutical suppliers and PacifiCare's Paradox and relational databases into a data warehouse built on Oracle7.1. To make the data more accessible, he put Holos, a front-end tool from Holistic Systems, Inc., on top of the Oracle Corp. database. Data from suppliers and claims processing continues to pour in, and the data warehouse has grown to 70G bytes.

Although analysts could make direct queries to Oracle, they get much quicker results if the data has been preloaded into Holos. The 30 users often want complex data sets with seven or eight dimensions, such as comparing similar-sized providers in a given region for a particular quarter.

Silva said he satisfies 80% of queries with Holos and the pharmaceutical application, which went into production Sept. 23.

What's ahead

The next challenge is to build warehouse systems that shed light on clinical care, not just pharmaceuticals, Feaver said. In some cases, the two sets of information need to be correlated. A doctor might show up as a low-cost prescriber of drugs for diabetes patients, but his patients might spend more time than necessary in the hospital due to lack of proper drug therapies, which is bad for overall costs, he said.

The data warehouse project will cost PacifiCare more than $1 million a year for the next five years, but Silva has spending approval and will see his staff nearly double next year. "It's costing a lot," he concedes, "but in the long run, we know it's going to be worth it."

New Products

Auto F/X Corp. has announced Power/Pac 1, a suite of special effects for Macintosh designers.

According to the Alton Bay, N.H., company, Power/Pac 1 special effects modules for Adobe Systems, Inc.'s Photoshop let designers create effects that can be altered after completing the effect.

Power/Pac 1 costs $249.

▶ *Auto F/X*
(603) 875-4400
www.autofx.com

Xerox Corp. has announced Pagis Pro 97, scanning software that lets users capture, use and organize color documents in the Windows Explorer file system.

According to the Peabody, Mass., desktop document systems division of the company, Pagis Pro 97 is based on PerfectScan imaging technology. It was designed to provide one-touch scanning, automatic image enhancement and small color files so users can share them via fax, electronic mail and the World Wide Web.

Pagis Pro 97 costs $169.

▶ *Xerox*
(508) 977-2000
www.pagis.com

Users want to be 'net-ready before they are ready for 'net

By Randy Weston

Business application users want their products Internet-ready but aren't quite ready to actually use them.

That was the word from users at the recent Oracle Application User Group conference in San Diego, where Oracle Corp. announced plans to make its 37 applications accessible through a World Wide Web browser. SAP AG and other business application vendors recently made similar announcements.

Web-based applications

For example, Lincoln Electric Co., a $1 billion welding equipment manufacturer, is standardizing on Oracle products partly because of new Internet-ready offerings for human resources and other applications. But the company also based its decision on the promise that the entire Oracle line will be accessible through a browser by year's end, said Cliff Burgess, financial systems manager at the Cleveland-based company.

But Burgess said his company runs a traditional operation and doesn't want to use the new technology quite yet. Lincoln Electric only wants to know if Internet front ends will be available when it makes the leap to an all-Web interface model.

"We're a 100-year-old company, and some things are hard to change," Burgess said. "Some things are nice to have [Web-enabled], but other applications aren't as necessary right now, and we wouldn't think of using them over the intranet for awhile. Still, it's nice to know they are there."

For now, Lincoln Electric is content to use a few Web-based applications over the Internet and corporate intranet, such as human resources. As Internet security improves and the technology matures, Burgess said, the company will probably move more of its business process applications, such as manufacturing and marketing control software, to the intranet.

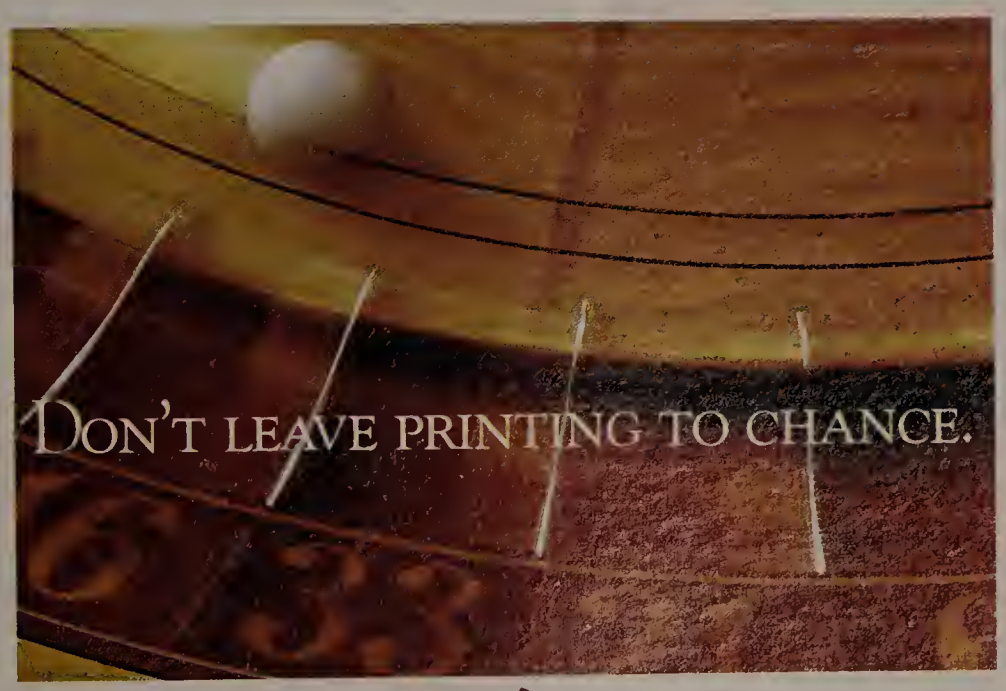
AT&T Universal Card Services Corp. is looking for Internet technology but has few plans to use it yet.

"We want to go on the Web where we can, where it makes sense," said John A. Rezsonya, assistant treasurer for funds management at the Jacksonville, Fla., company. "The main thing, however, is it's nice to have the choice."

Among the applications AT&T Universal Card is planning to put on the corporate intranet are financial applications such as general ledger and accounts payable.

Clare Gillan, applications analyst at International Data Corp. in Framingham, Mass., said she isn't surprised users are wary about putting their business-critical applications on the Internet or corporate intranet because of security and other concerns.

But Oracle's push to put its applications on the Internet early "speaks well of its technological capabilities. Oracle for many years has been pushing technology instead of applications. Finally, its technological expertise is showing," she said.



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Commentary

Driving toward the cliff

Frank Hayes

Just now, Java looks a lot like a sleek new sports car roaring ahead at top speed — straight toward a cliff.

Everybody wants Java. When I ask corporate software development managers whether they're doing any Java development, nobody says no. It's either, "Sure, we're working on a couple projects," or, "Sorry, I can't talk about that — it's strategic."

About 200,000 programmers use Java seriously enough to buy tools such as Symantec's Cafe and Microsoft's Visual J++, according to International Data Corp. (IDC). It took Borland's red-hot Delphi almost two years to get numbers like that. Powersoft's PowerBuilder took even longer. Sun Microsystems' Java did it in nine months.

That's the hot rod. So where's the cliff?

It's sitting out there just at the point where corporate managers get the OK to start their first big Java projects — and discover there's no one to do the work.

Yes, there are 200,000 Java programmers — even more if you count the people who just use the free Java Development Kits that Sun, IBM, Microsoft and other vendors are giving away.

But unlike with PowerBuilder or Delphi, a lot of people outside corporate IS departments are sucking up that pool of Java programmers as fast as they hit the streets. Those programmers are building Java-powered telephones, set-top boxes and personal information managers and designing fancy Web pages and killer commercial applications.

That leaves a lot fewer consultants and contract programmers to work on IS projects. And those programmers are already busy building the demonstrations and pilot projects that every IS shop is either working on or can't talk about.

So what happens in a few months when the pilot projects are finished and development managers go looking to staff their first big Java projects? The programmers won't be there. Or rather, there won't be anywhere near enough programmers to build all those projects.

Too far ahead

The trouble is that Java has picked up so much speed, especially among corporate IS shops, that it has outrun the computer industry's ability to gin up the programmers, development tools and support infrastructure that real corporate development requires.

Yes, more Java programmers are on the way — another 200,000 by this time next year, according to IDC. And Symantec, Borland and other vendors have promised tools to make Java easier to use.

But they'd better show up soon. If Java runs out of programmers, IS shops won't just postpone their first big Java projects. It's more likely that they'll do those projects some other way, whether it's using distributed PowerBuilder, ActiveX-on-Unix or technology from any of the other vendors that would love to take a piece out of the Java juggernaut. Once corporate developers discover they can get the job done without Java, they may never try it again.

And if Java goes over that particular cliff, you can kiss that shiny new sports car good-bye.

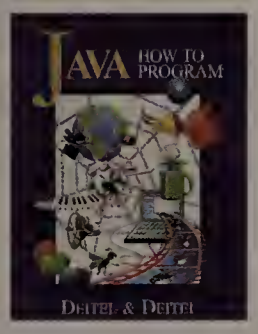
Hayes is *Computerworld*'s staff columnist.

Three books on Java target different audiences

Java: How to Program **by H. M. Deitel and P. J. Deitel, Prentice-Hall PTR, Upper Saddle River, N.J.; 1,104 pages; $45 (paperback)**

Be forewarned: This book reads like a Comp-Sci 102 textbook, complete with a section early in Chapter 1 headed "What is a computer?" The emphasis is on how to program; Java just happens to be the language in which the examples are written.

That said, though, it is hard to imagine a more thorough book for anyone who wants to learn Sun Microsystems, Inc.'s Java and object-oriented programming. The author assumes very little — there is even an appendix on the ASCII character set. Every chapter is heavily sprinkled with sample code fragments, screen shots, good programming practices and common errors, along with a quiz and at least a dozen exercises at the end.



Impatient programmers who hope to get up to speed quickly on Java won't want this book. But for developers who want to learn object-oriented programming, it is a methodical, step-by-step approach to doing that with Java.

Live Java **by David Levine, AP Professional, Boston; 345 pages; $24.95 (paperback)**

This one is for true believers. It is glib, opinionated and chummy, but readers who aren't already convinced that Java will change the shape of civilization as we know it — or who just don't feel a need to hear that pep talk again — may quickly get tired of the sermon.

The book skims through the contents of Sun's Java Development Kit, Internet resources and Java jargon but never in depth or detail. There are extensive code listings but without any commentary to aid learning.

At the center of the book is an extended, imaginary presentation by a consultant persuading a CEO to hire him for a Java project. It makes the business case for using Java and might serve as a good overview for managers trying to make that decision. But the rest of the book assumes readers will be fascinated by whatever the author finds interesting. This reader wasn't.

Advanced Java **by Chris Laffra, Prentice-Hall PTR, Upper Saddle River, N.J.; 286 pages; $34.95 (paperback)**

This book's concerns are completely practical: What are Java's quirks, and how can developers work around them? Written by a systems programmer at Morgan Stanley Group, Inc., it assumes the reader already knows Java well enough to build real applications.

It isn't for the faint of heart, but the author knows exactly for whom he is writing and moves quickly into technical issues, including how to optimize Java programs.

There are plenty of programming tips and lots of code fragments. An MS-DOS disk includes a debugger written in Java, a C++-to-Java translator and a windowing library that extends the Abstract Window Toolkit that comes with Java. — *Frank Hayes*

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E MAIL

E-mail integration bundles on the way, 62

The Enterprise Network

IS gets a grip on net management

By Patrick Dryden

Want comprehensive management of your enterprise network, systems and applications? The choices are diverse, but the market is finally approaching the level of control common in the good old days of the data center, users said.

"Finally, I see discipline coming to the [world of] distributed systems that I miss from my mainframe days," said David Bowman, director of midrange systems engineering at Ameritech Corp.

Users and analysts said the choice generally comes down to Tivoli Systems, Inc.'s Tivoli Management Environment 10 and Computer Associates International, Inc.'s CA-Unicenter.

But there are other options, depending on your priorities.

Chicago-based telecommunications provider Ameritech chose a Tivoli-based set of multivendor tools to manage 1,400 servers that support 12 business units across five states.

For similar reasons, Central Vermont Public Service Co. recently picked CA's suite. Now operators can deal with a common

Network management, *page 62*

SETH AFFOUMADO

Turner Broadcasting's Charles Hebert *says no platform can do it all for his company*

Users approve Tivoli/IBM combo

By Patrick Dryden
AUSTIN, TEXAS

Tivoli Systems, Inc. six months ago charted a new course for systems, applications and network management tools from its Tivoli Management Environment (TME) line and the SystemView assortment from its new parent, IBM.

So far so good, according to analysts and administrators in the trenches.

In forging the TME 10 platform, Tivoli has maintained its platform and partner independence from its parent company, observers said. But the subsidiary, based here, still must deliver on some big promises.

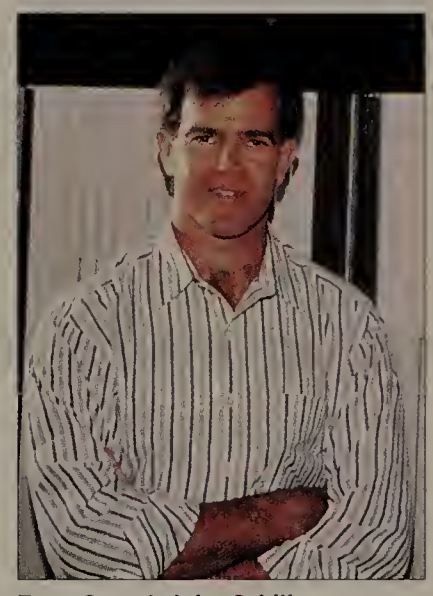
The act of publishing a road map for product delivery "on the Web, for the world to see," clearly signaled an end to IBM's old days of "turf wars among product groups and endless approvals," said Paul Mason, an analyst at International Data Corp. in Framingham, Mass.

Tivoli has "dispelled the fear that IBM would smother them," said Sue Aldrich, an analyst at Patricia Seybold Group in Boston.

And the acquisition helped Tivoli by giving it much-needed backing for development, distribution and support, said David Bowman, director of midrange systems engineering at Ameritech Corp. in Chicago.

Tivoli continues to roll out products and make alliances, "not just keeping its momentum, but increasing

Tivoli, *page 62*



TransQuest's John Cahill says *company is waiting to see what products Tivoli delivers*

Market rises for SNA gateways

By Laura DiDio

There is new life in the mature SNA gateway market these days, fueled by businesses' need to give local and remote LAN-based end users easy access to host data.

This is evidenced by new packages due in the coming weeks from traditional SNA gateway market leaders Microsoft Corp. and partners Novell, Inc. and IBM, which share development of NetWare for SSA. Those vendors emphasize leading-edge functionality such as frame-relay connectivity, data encryption, network management and TN5250 services, analysts said.

Fueling the resurgence in SNA gateway software are corporations in vertical markets such as banking and health care. Such companies store large amounts of data on host systems and depend on customized applications.

That's the case at East Alabama Medical Center in Opelika, which uses NetWare for SAA from Novell and IBM and Microsoft's SNA Server, said John Arendt, senior network analyst at the center.

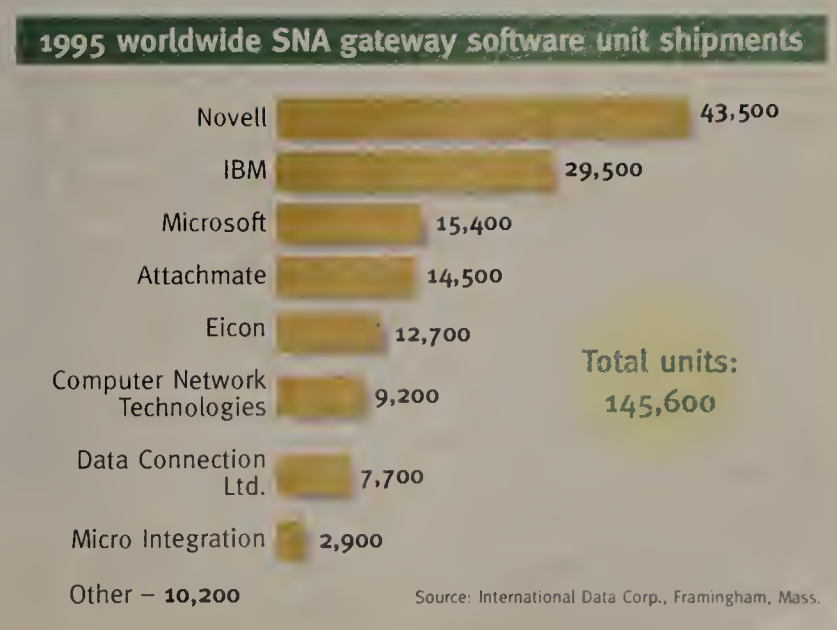
"We're investing more heavily in SNA gateway software because, more than ever, our users have to access data on host machines," Arendt said. "And happily we're seeing the vendors respond to our needs." He said vendor responses include more leading-edge features such as Microsoft's support for multiple log-ins, better integration with host print services and TN5250 support in the upcoming SNA Server 3.0 release.

About-face

Analysts said this is a distinct turnaround. "SNA gateway software is no longer a low-end, 3270 terminal emulation pipeline designed to give just a few, select users within an organization access to host data. Instead, companies are buying packages to link large numbers of local and remote users," said Lynn Nye, president of NetResults, Inc., a consulting firm in Portland, Ore.

Today, users demand — and get — software packages that deliver high-end, extended features. And functionality and cost aren't major considerations, agreed Nye and Lucinda Santisario-Borovick, an analyst at market research firm International Data Corp. (IDC) in Framingham, Mass.

SNA gateways, *page 64*



Untangling E-mail

Vendors offer bundles to help integrate E-mail systems

By Tim Ouellette

Users may soon be able to get E-mail integration bundles rather than having to choose among a hodgepodge of different gateways and switches.

Users can gain from these bundles by having one place to go for back-end electronic-mail management, while still running their existing departmental E-mail systems, observers said.

Integration tools

For example, Canadian Imperial Bank of Commerce uses Linkage Software, Inc.'s Linkage Messaging Exchange (LME) switch, announced last week, to provide Internet E-mail and combined directory information for thousands of users on host- and LAN-based messaging systems.

"We are looking at using the LME to put Internet E-mail into our existing E-mail system" rather than restructuring the entire network, said Steve Wilde, a systems analyst at the Toronto bank.

Another vendor, Infonet Software Solutions, this month will ship Messenger Workplace, a backbone messaging server that includes a suite of gateways, directory services and management software.

Control Data Systems, Inc. did the same thing recently with a high-end messaging, directory and collaboration offering called Rialto [CW, Oct. 14].

Link it up

Linkage's LME is a low-cost Windows NT-based messaging switch that provides peer-to-peer connection among several LAN- and host-based E-mail systems, with tight integration with Microsoft Corp.'s Exchange. It allows Exchange sites to be linked to other E-mail systems. LME can be managed with NT tools.

Observers said cost can be a major factor with some E-mail integration projects because IS shops are already trying to minimize the impact on hardware and user performance.

"Offerings from companies like Control Data are much more expensive than [LME]," said Mike Hurwicz, an analyst at Patricia Seybold Group in New York. "You get scalable, heterogeneous E-mail for users who are somewhat oriented around Exchange."

For its part, Vancouver, British Columbia-based Infonet sells a suite of servers that run on Windows NT or Sun Microsystems, Inc.'s Solaris. The backbone of the suite is Infonet's X.500 directory, which stores all management information about the E-mail network, said Infonet President Alex Rassey.

The servers are sold separately and provide a messaging backbone, gateways, directory services, network management, a graphical faxing system, electronic data interchange services and discussion forums.

The entry-level Linkage Messaging Switch costs $12,000 to link Exchange with up to 500 Notes users. A complete product that provides connections among 12 different E-mail systems and supports up to 25,000 users costs $108,000.

Infonet's various Messenger Workplace servers cost between $7,500 and $9,995. Each supports 100 users.

Network management

CONTINUED FROM PAGE 61

interface to manage a mix of servers based on Unix, Windows NT and Novell, Inc.'s NetWare, said Tracy Adams, a technical support manager at the Rutland, Vt., utility.

Proponents claim each platform scales to cover large environments, handles systems from the desktop to the data center and allows open integration for vendors of popular tools.

"It's a two-horse race between CA and Tivoli in large organizations," said Paul Mason, director of the enterprise systems management program at International Data Corp. in Framingham, Mass. "You can't come down overwhelmingly well on either side."

Potential users can "adopt CA's suite or tie favorite tools into Tivoli's framework," Mason said, but the choice often hinges on existing products and relationships.

"This competition is good because it pushes [vendors] to add more capabilities," said Richard Weiss, an architect for enterprise management systems at Charles Schwab & Co. in San Francisco.

There are other ways to bring some control to enterprise chaos.

Administrators can "build a good management ensemble" by adding systems management pieces to the distributed Spectrum enterprise network management platform from Cabletron Systems, Inc., said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

They also can try Integrated Systems Management from Bull HN Information Systems, Inc. in Billerica, Mass. That suite is "quite powerful, especially for bringing security to distributed environments," McConnell said.

Hewlett-Packard Co. continues to move its OpenView platform toward integrated network and systems management, he said, "but HP isn't moving quickly."

Or, instead of adopting an integrated platform, administrators themselves can continue to forge links among several tools.

For example, Atlanta-based Turner Broadcasting System, Inc. built a management suite to monitor its global network because no single platform could handle it, said Charles Hebert, manager of software services support.

But "integrating different tools is a huge task that takes time and some smart people," Hebert said.

Tivoli

CONTINUED FROM PAGE 61

it," said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

But Tivoli isn't trying to deliver all the management pieces itself.

Users applauded efforts to keep the TME 10 architecture open as a framework that can support products from Tivoli partners that compete in other areas, including Candle Corp., Compuware Corp. and Platinum Technology, Inc. Users said they appreciate the ability to choose best-of-breed tools without having to do all the integration work themselves.

About 160 vendors gathered here last week to learn how to make their tools work with TME 10. But Tivoli officials acknowledged they have a lot of work ahead before partners can integrate their products openly.

One immediate task is to ship on schedule in December a set of services that link IBM mainframe management tools to TME 10 and the Global Enterprise Manager (GEM). GEM is an interface that simplifies the management of applications by tools that run in conjunction with TME 10.

Gateway on the way

Another immediate task is completion of a gateway that opens up TME 10 to LAN and desktop management tools from vendors such as Intel Corp., McAfee Associates, Inc. and Symantec Corp.

"Nothing is missing so far at my level, but we still must wait and see what they deliver for integrating mainframe products with the distributed environment and reaching the desktop level with Intel," said John Cahill, assistant vice president for production services at TransQuest, Inc., the information subsidiary of Delta Air Lines in Atlanta.

Tivoli has remained responsive to user needs, said Richard Weiss, an architect for enterprise management systems at Charles Schwab & Co. in San Francisco, "but the really aggressive commitments won't come until next year."

Survival of the small guy

With a staff of 320 and revenue of $50 million, tiny Tivoli Systems seemed an unlikely candidate to rescue IBM's management software efforts after Big Blue failed to deliver on its own cross-platform SystemView strategy.

Tivoli President and CEO Frank Moss

Users cringed when IBM acquired Tivoli in January for $743 million. They feared the colossus would ruin the good work Tivoli had done building an open framework to tame multivendor systems in distributed networks.

But IBM bucked acquisition tradition by putting Tivoli President and CEO Frank Moss in charge of the combined operation. The goal was to roll the Tivoli Management Environment and IBM products into one package that could cover everything from the desktop to the data center.

Moss promised users, "This time, the small guy would survive being swallowed by the big guy."

CW: How did you maintain Tivoli's independence and momentum?
Moss: "It's a remarkably simple formula — I'm in charge. And before the merger, we agreed TME would be the core foundation. We could keep moving fast by being free to make daily decisions here as we merged the Tivoli and IBM product groups and built a single sales force.

CW: On what parts of your road map are you behind schedule?
Moss: We set a schedule we knew we could achieve, but we had to scramble to add three more platforms and keep about two dozen up to date.

CW: What did you miss?
Moss: We're hearing more and more demand to exploit the Internet for simplifying management. That area heated up faster than I anticipated.

CW: Where do you go from here?
Moss: Next year we will scale down to exploit application management, not just for the enterprise through GEM but for smaller organizations — those with a few dozen servers and less than 1,000 desktops. That's the fastest-growing market and one we haven't addressed.

— Patrick Dryden

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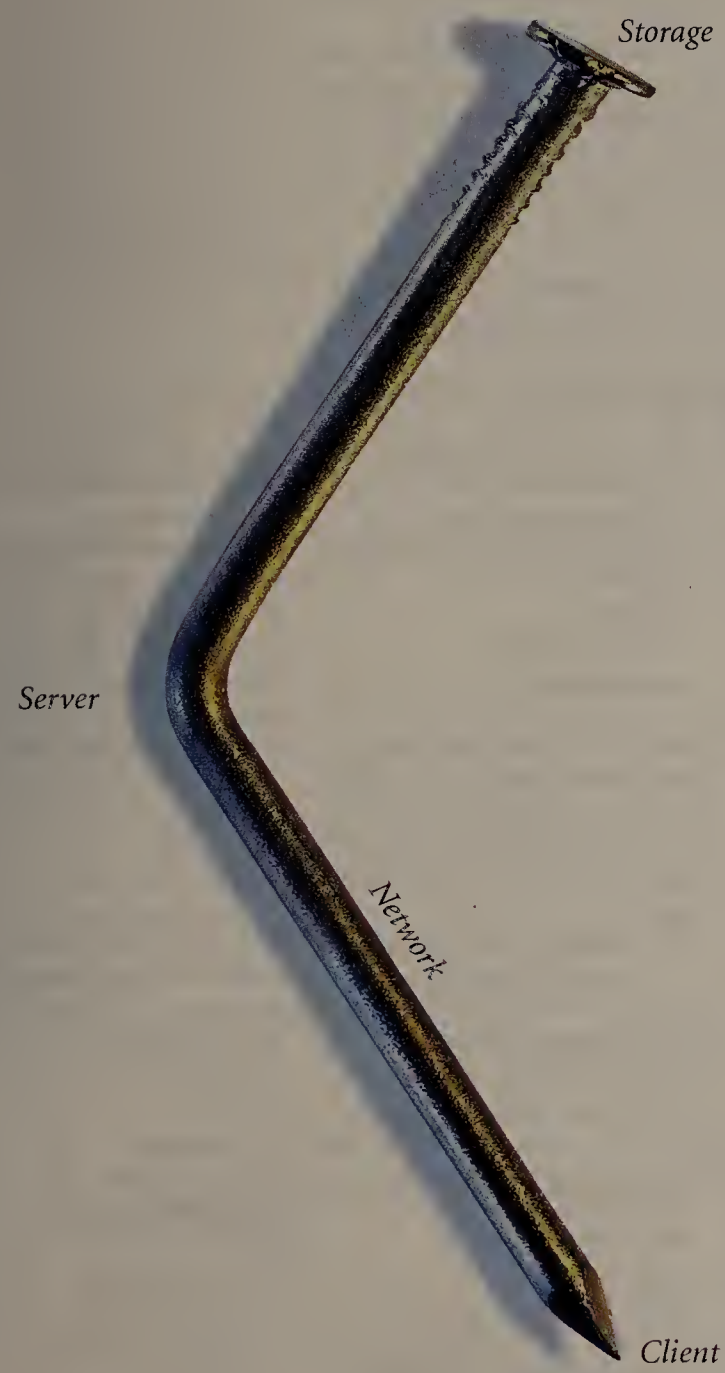

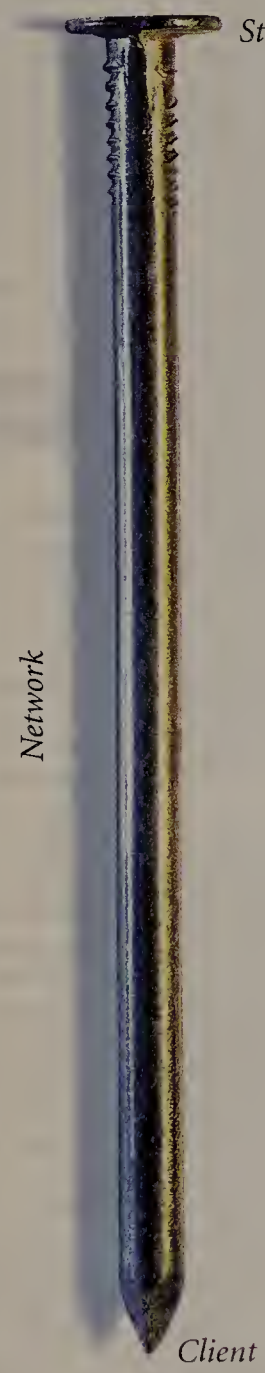

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The Storage Connection

SNA gateways

CONTINUED FROM PAGE 61

That also opens the door for a new class of vendors, most notably internetworking giant Cisco Systems, Inc. and others such as Eicon Technology Corp. and Open Connect, Inc., to enter the SNA gateway market.

At the same time, demand for older DOS-based SNA gateway products is disappearing, Santisario-Borovick said.

Users agreed.

"Leading-edge features like advanced network management and the ability to configure my servers across the enterprise with NetWare for SAA 2.2 are absolutely essential to our business," said Martin Carmen, a LAN consultant at a large California bank. The bank has more than 4,000 users in more than 200 branch offices in three states.

"The users need instant access to host data. And me and my network administrators need to ensure secure, 100% uptime for our end users and bank customers. SNA gateway software is crucial to our business," Carmen said.

Users give edge to SNA Server

Although NetWare for SAA 2.2, a new version of the product jointly offered by Novell and IBM, will likely appeal to the installed base, users and analysts said it doesn't offer nearly as many leading-edge features as Microsoft's SNA Server.

At least six NetWare for SAA users contacted by *Computerworld* said they are either in the process of migrating or have definite plans to migrate to SNA Server.

"Hands down, SNA Server 3.0 is easier to configure, administer and get up and running [than NetWare for SAA 2.2]," said John Arendt, senior network analyst at East Alabama Medical Center.

Arendt said it took him three days to get NetWare for SAA operational, compared with about three hours for SNA Server. He also said Microsoft's SNA gateway software was more reliable than the Novell/IBM offering.

Arendt and Rick Sangha, manager of telecommunications at Allegheny Ludlum, Inc. in Pittsburgh, gave SNA Server the edge over NetWare for SAA in terms of performance. "SNA Server conservatively saves me 50% in capital expenditure and manpower management hours over NetWare for SAA," Sangha said.

Both users said that despite a heavy investment in NetWare for SAA, they will migrate to SNA Server in the next 18 months or so. The Novell SNA gateway offering still has some stalwart supporters, though. Martin Carmen, a LAN consultant at a large California bank, said his firm will stick with NetWare for SAA.

"We've got a great licensing arrangement with Novell, and NetWare for SAA is working really well for us," Carmen said. "Unless there's a really compelling reason to switch, why should I?"

— Laura DiDio

Connectivity quandary

Several vendors, including partners Novell and IBM, Microsoft, Cisco and Eicon Technology, are adding to their SNA feature sets in varying degrees. But it is unclear how the firms will address integration between SNA networks and the Internet, said IDC analyst Lucinda Santisario Borovick. But "we anticipate these products being announced by year's end and shipping within three months after that," she said. Microsoft will be first to detail its SNA-to-Internet integration plans at its Professional Developer's Conference in Long Beach, Calif., this week. It will demonstrate Cedar, software that will enable SNA Server users to access mainframe transactions without using 3270 terminal emulation. A spokesman for Novell, meanwhile, declined to comment on future product plans. *— Laura DiDio*

Worldwide telecom agreement sought

By Elizabeth de Bony
BRUSSELS

The European Commission has stepped up pressure on Spain to formally agree to end all restrictions on the supply of telecommunications services by Jan. 1, 1998.

The European Commission is also demanding that Spain grant its first telecommunications license to a foreign supplier during the first half of 1998, a spokesman for the commission said.

The World Trade Organization (WTO) is trying to hammer out a global agreement that would allow for international competition in telecommunications services. Without Spain's cooperation, the commission won't be able to match a U.S. offer.

The U.S. and the European Union (EU) agreed to put offers on the table by mid-November that are attractive enough to persuade Southeast Asian countries to open their markets.

The next round of negotiations on the deals will take place Dec. 9 in Singapore, the spokesman said.

"Only by meeting this strict timetable will we have a chance of respecting the mid-February 1997 deadline set by the [WTO] for completing negotiations for a global telecom agreement," said an official at the WTO.

At stake in the WTO talks is an international market for telecommunications worth about $500 billion, which the World Communications Systems Organization says will grow to $625 billion this year. The U.S. market represents half the total, according to U.S. statistics.

The improved offers from the U.S. and the EU will stay on the table provided key countries in Latin America and Asia — notably Japan, Korea, Singapore and Thailand — upgrade their offers, the commission spokesman said.

WTO telecommunications talks broke down earlier this year over U.S. claims that market access offers from Asia and, to a certain extent, the EU didn't match commitments from the U.S.

De Bony writes for IDG News Service.

Briefs

3Com earnings up

Buoyed by soaring sales of LAN switching and remote networking products, **3Com Corp.** recently announced a 42.2% increase in total revenue and a 62.2% rise in net income for the first quarter. It reported net income of $93.1 million, compared with $57.4 million a year earlier.

New NewtWatch

NetManage, Inc. in Cupertino, Calif., upgraded its desktop management tool kit last week to a 32-bit Windows NT version. Besides having an improved user interface, NewtWatch 5.0 includes simplified software distribution with a new setup process. It also has support for recently improved Simple Network Management Protocol agents included in all NetManage products for monitoring stations on an intranet. NewtWatch 5.0 is available for $495. Upgrades from the 16-bit Version 4.6 cost $95.

New Products

Network-1 Software and Technology, Inc. has announced FireWall/Plus for Windows NT, an end-to-end network security firewall.

According to the New York company, FireWall/Plus for Windows NT uses inspection technology that operates at the application, circuit, frame and packet levels.

The firewall was designed to intercept traffic before it arrives at the operating system level.

Pricing for FireWall/Plus for Windows NT starts at $4,500.

▶ *Network-1 Software and Technology*
(212) 293-3068
www.network-1.com

EMC Corp. has announced Symmetrix Network File Storage (SNFS), a mainframe-class, storage-based file server for networks.

According to the Hopkinton, Mass., company, SNFS is a special-purpose network file server that runs software to move data over networks. It was based on EMC's Symmetric Integrated Cached Disk Array storage system and provides 72G bytes to 1.1T bytes in one cabinet.

Pricing for the server starts at $125,000.

▶ *EMC*
(508) 435-1000
www.emc.com

Telebyte Technology, Inc. has announced Model 5501 Single-Port Frame Relay Access Device, a data transfer device designed to help reduce the cost of leased lines.

According to the Greenlawn, N.Y., company, the Model 5501 Single-Port Frame Relay Access Device enables a non-frame-relay device to connect to a common carrier frame-relay network service or a private frame-relay network.

It costs $555.

▶ *Telebyte Technology*
(516) 423-3232
www.telebyteusa.com

Legato Systems, Inc. has announced NetWorker 4.2.5 for Unix, enterprise storage management software.

According to the Palo Alto, Calif., company, the product works with IBM's AIX and Sun Microsystems, Inc.'s Solaris and SunOS platforms.

It was partly designed to improve data transfer performance for distributed LAN-based storage servers. Users can conduct regularly scheduled full backups at a rate of more than 11M byte/sec. per drive, company officials said.

NetWorker 4.2.5 for Unix costs $6,000.

▶ *Legato*
(415) 812-6000
www.legato.com

VPNet Technologies, Inc. has announced VSU-1000, a virtual private network service unit for the wide-area network side of a router.

According to the San Jose, Calif., company, VSU-1000 is a stand-alone product that combines encryption, management and compression services to bring secure data to remote sites.

Pricing for VSU-1000 starts at $3,995.

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(408) 445-6600
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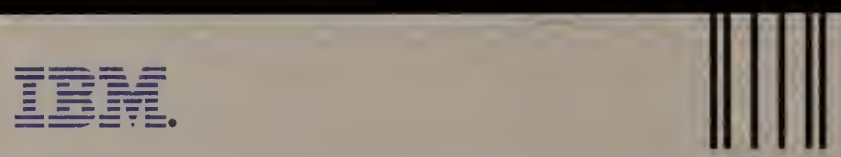

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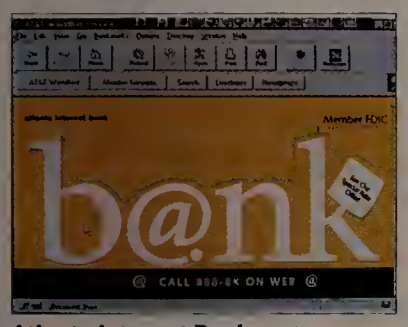
The Internet

Internet telephone services help business reduce long-distance charges, **70**



Atlanta Internet Bank *customers can use a standard Web browser for their online banking*

Browser interface sets Atlanta bank apart

By Kim Girard

Don Shapleigh has built a bank without walls on the Internet.

Atlanta Internet Bank, which went online last month and is financially backed by Carolina First Bank in Greenville, S.C., enlisted AT&T Corp. to build and manage its World Wide Web site.

Customers can do business with the online bank using a standard browser rather than the PC software required by many traditional banks that are adding online services.

Electronic commerce

"They send you a disk, and you have to load it," said Shapleigh, president of the new venture. "With me, you can bank with just a browser. If you carry your laptop, you can bank with me anywhere in the world."

Internet banking "lowers the cost to the bank substantially by not having to support software on everyone's PC or desktop," said Evan Bauer, an analyst at Giga Information Group, a consultancy in Cambridge, Mass. Start-up costs for Atlanta Internet Bank were less than $1 million, Shapleigh said.

But successful banks of the future will need to offer software to help customers manage investments, finances and browser accessibility to account balances, Bauer said.

Hiring a major long-distance carrier to manage the site saves

Internet bank, *page 70*

Chase Manhattan mixes old, new technology for online banking

Chasing EDI onto the Internet

By Mitch Wagner
NEW YORK

At The Chase Manhattan Bank Corp., electronic commerce pioneers hope to lead by following.

As the bank's corporate customers go onto the Internet, Chase plans to follow them, offering the same financial services in cyberspace that it offers in the real world.

"We want to use electronic commerce to cement relationships and find new customers," said Fred Slavin, vice president of new business development at Chase Global Payment and Treasury Services.

The company is testing electronic data interchange (EDI) payment services on the Internet and looking into a bill-payment service for consumer-oriented businesses and a middleman service for bulk business supplies.

The flagship effort for Chase is its EDI payment processing service. Chase will provide financial services for companies that already do EDI on the Internet. The plan is for Chase to use the same EDI channels its customers already use. To that end, Chase is using software from Premenos Technology Corp., a provider of EDI software for the Internet.

Testing the service for Chase is Diamond Shamrock, Inc. in San Antonio, which uses the Premenos software to stock its chain of convenience stores. Throughout the autumn, Diamond Shamrock has been sending test messages through Premenos software using the IBM Advantis wide-area network, said Gerlinde Pyron, manager of electronic commerce at Diamond Shamrock.

The next step, due to begin this month, is to start sending EDI messages through Advantis and, in parallel, through the Internet. If that goes well, Diamond Shamrock will use the Internet as its primary EDI channel and process payments through Chase.

Chase Manhattan *tests EDI and bill-paying services for its online banking Web site*

"We see the future as being EDI on the Internet, and this is an excellent opportunity to get our feet wet on the project," Pyron said. Diamond Shamrock officials said they hope to see significant cost savings from Internet EDI because Internet connections are significantly less expensive than WAN connections such as Advantis.

Greg Cline, an analyst at Business Research Group in Newton, Mass., said

Chasing EDI, *page 70*

Microsoft, Netscape bundles extend suites' reach

Web servers need help to work with existing apps

By Kim S. Nash

Internet companies cannot live by Web servers alone.

That's why Netscape Communications Corp. and Microsoft Corp. have hastened to announce that conventional World Wide Web servers will be just one product in software bundles each vendor plans to ship early next year.

COMPUTERWORLD ANALYSIS: Web servers

Both vendors are trying to put the browser war behind them and shift the attention of IS to back-end Web software that can be integrated with existing applications.

For example, Enterprise Server 3.0 will be one of nine servers in the SuiteSpot package from Netscape due early next year. Groupware, electronic mail and other servers will also be part of the suite.

Meanwhile, Microsoft last week announced that an upgrade to its Internet Information Server (IIS) Version 3.0 will be part of a similar suite of servers dubbed Normandy. Microsoft had first positioned IIS as a stand-alone Web server, then as simply a set of features in the Windows NT Server operating system.

A Web server alone isn't scalable or capable enough to act as a platform for key business applications such as accounting software, users and analysts said.

"Putting information on a Web [server] is a good starting point, but that's all it is," said Bill Durbin, director of information systems at NorCal Waste Systems, Inc. in San Francisco.

Far more important, Durbin said, is "what Web servers can do for all the applications I have today."

And Microsoft and Netscape — by emphasizing that they will surround their core Web servers with loads of other software — have acknowledged that.

Microsoft conceded the point last week at its Site Builders Conference in San Jose, Calif. Web servers don't provide transaction processing capabilities. And applications written in Common Gateway Interface (CGI) — a lan-

Servers, *page 70*

Serving the Web

Some of the features in upcoming servers from Microsoft and Netscape	Netscape Enterprise Server 3.0	Microsoft IIS 3.0
Support for intelligent agents	Yes	No
Built-in search engine	Yes	Yes
Platforms supported	Various Unix versions, Windows NT	Windows NT
Availability	Q1 1997	Q1 1997
Price	$995	Free

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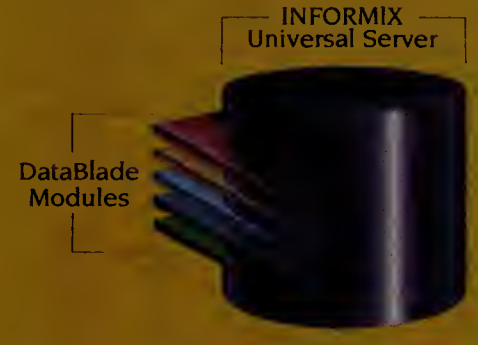

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Internet cuts long-distance phone bills

However, without standards, different 'net products don't interoperate

By Kim Girard

Internet telephones won't replace long-distance carriers for domestic calls, but they are emerging as a way for companies to chip away at international phone bills.

"It's cheap, and it makes sense for international calling," said Marc Winther, an analyst at International Data Corp. in New York.

To use an Internet phone, first introduced to Windows-based PCs by VocalTec, Inc. early last year, a user needs a multimedia computer, a modem, software and an Internet connection. But sound quality varies, and the systems don't interoperate.

Dax Patel, director of data processing at Union City, N.J.-based Touch Of Lace, Inc., a lace manufacturer with 29 offices worldwide, shaved his long-distance bill by 29% using Quarterdeck Corp.'s WebTalk 1.0.

Of the company's 225 employees, 45 use Internet phones via $19.95-per-month Internet connections. The company saves the most money on internal calls from Asia, where the long-distance rates are three times as high as they are in the U.S., Patel said.

"We do a lot of communications with Asia about patterns and designs — you're on the phone all the time," Patel said. "Now we don't worry about the time. As long as they want to talk, we don't care."

Internet phone requirements:

- Internet phone software
- 28.8K bit/sec. modem
- An Internet connection
- A multimedia PC
- A duplex-capable sound card
- Attached microphone

Communications

Twelve of Touch Of Lace's regular customers also have downloaded the software and use it to communicate with the company, Patel said.

Ken Bass, MIS director at Bass & Co., an accounting system installation company in Great Falls, Va., said Boca Raton, Fla.-based Netspeak Corp.'s WebPhone 2.0 has helped lure new business referrals from abroad.

Bass said he gets an average of four business leads a week. WebPhone also has an online directory that lists World Wide Web sites currently using WebPhone.

"WebPhone was far and away the best sort of Internet voice-mail application to run because it took messages for us online 24 hours a day," Bass said.

Douglas P. Lang, president of the High Technology Store, who sells high-technology products over the Web from his Washington headquarters, said he saved "thousands of dollars" using IDT Corp.'s Net2Phone.

Lang messages potential customers over the Web and requests that they download Web2Phone on the Web and call him using an 800 number.

Unlike some Internet phone products, which operate only when both parties share the same software, Net2Phone users can make calls over the Internet to any regular telephone.

"I've opened myself up to millions and millions of people who would have hesitated to make a decision to buy from me because I'm multiple time zones away," Lang said.

Free phone

You can download free Internet phone software from the Web at net2phone.com.

Web-based bank debuts

CONTINUED FROM PAGE 67

companies the headache of providing security, maintenance and upgrades.

Shapleigh said initially he hopes to use low interest rates to lure new business from AT&T's WorldNet customers, who use AT&T for online access.

The bank advertises on AT&T's Easy World Wide Web page, although its services are available to any Internet user. Lower rates are possible because the bank has saved millions by not having to build branches and invest in software development, Shapleigh said.

The bank will start by offering checking accounts, direct-deposit electronic bill payment, account transfer capability and automated teller machine cards.

Bank officials plan next year to offer loans, brokerage services, individual retirement accounts and credit and debit cards. They plan to target commercial accounts in the future, Shapleigh said.

Security is a big issue for bank Chief Information Officer Del Murray. When a customer uses the Atlanta Internet Bank's Web site through AT&T's servers, the information is encrypted and no information goes out onto the Web.

Customer requests travel from AT&T's WorldNet server to its Easy World Wide Web site through a firewall via a private line to the bank's data processing system, where debits and credits are tracked on mainframes.

Users who aren't AT&T customers and access the site through the Web are guaranteed that same security. Shapleigh said chances of a system break-in are "one in 100,000" because of complicated log-ins, password configurations, standard encryption, a firewall and daily internal audits. Risk to customers is minimal, Murray said.

"Any time you go in and buy a shirt at Macy's, all the information about you goes out on the telephone line uninsured and unencrypted," he said. "People are going to have to learn to trust us. But I think in five to 10 years, this is going to be the only way to do business."

Chasing EDI onto the Internet

CONTINUED FROM PAGE 67

Chase stands a good chance of succeeding in business-to-business electronic commerce. But the bank must pay attention to electronic commerce basics. It will need to maintain flexible fee schedules and strong marketing and be willing to be daring.

"They'll need to entice businesses to use the 'net. They'll need to nudge them and provide an aggressive reason for them to sign on," Cline said.

If the EDI trial proves successful, Chase will roll the service out to its other customers in the first quarter.

Also on the test bench for Chase are other projects slated for deployment next year. Under the first program, the bank will act as a middleman for corporate customers that buy and sell commodity business supplies, such as office supplies.

Employees of Chase's corporate customers will be able to order products such as paper clips and staplers by using World Wide Web intranet sites, buying the supplies from other companies that are Chase customers.

The business supply program is similar to a competitive project being deployed by IBM and Staples, Inc.

Servers bundled with software

CONTINUED FROM PAGE 67

guage frequently used to build applications for standard Web servers — can be difficult to debug, said J Allard, a group product manager at Microsoft in Redmond, Wash.

Netscape made a similar case at its user show two weeks earlier. "It's one thing to create an intranet, but there's more value in integrating with systems already there," said Marc Andreessen, vice president of technology at Netscape in Mountain View, Calif.

IIS is it

Microsoft's IIS is the fastest-growing Web server, said U.K.-based Web consulting firm Netcraft Ltd. IIS, which was released in February, is used at 45,000 public Web sites, according to Netcraft's latest survey.

Falling short

Some users have discovered where Web servers are lacking. For example, database access is poor in both Microsoft and Netscape Web servers, said Jay Vander Wall, a technical architect at Dow Chemical Co. in Midland, Mich.

Dow, which runs IIS and Enterprise Server as well as freeware servers, has had to write CGI scripts to get at back-end Oracle Corp. databases. Most Web servers lack an easy, built-in way to link intranet applications to corporate databases, Vander Wall said.

"We need that to be more automated. Otherwise, we'll have a lot of code hanging around that we'll have to maintain manually," he said. Dow is evaluating third-party tools to link intranets to Oracle but is also looking to its Web server providers for help.

Netscape and Microsoft plan to address database access and other issues with upgrades to their respective Web servers and related software in the first quarter of next year (see chart, page 67). SuiteSpot and Normandy will provide E-mail, groupware, conferencing and Usenet-style discussion capabilities.

"You will see Netscape and Microsoft be more concerned about making intranets part of the infrastructure that's already there because they know that companies aren't simply going to throw out what they have already invested in," said Rick Villars, an analyst at International Data Corp. in Framingham, Mass.

New Product

Elektroson, Inc. has announced WebGrabber, software installed on a World Wide Web browser to download Web content to a CD.

According to the Campbell, Calif., company, downloading to a CD is controlled from the Netscape Communications Corp.'s Navigator menu. Users collect all the files they want to store on a hard disk and choose a CD-Recordable function. The files are written to CDs in Hypertext Markup Language format.

WebGrabber costs $79.95.

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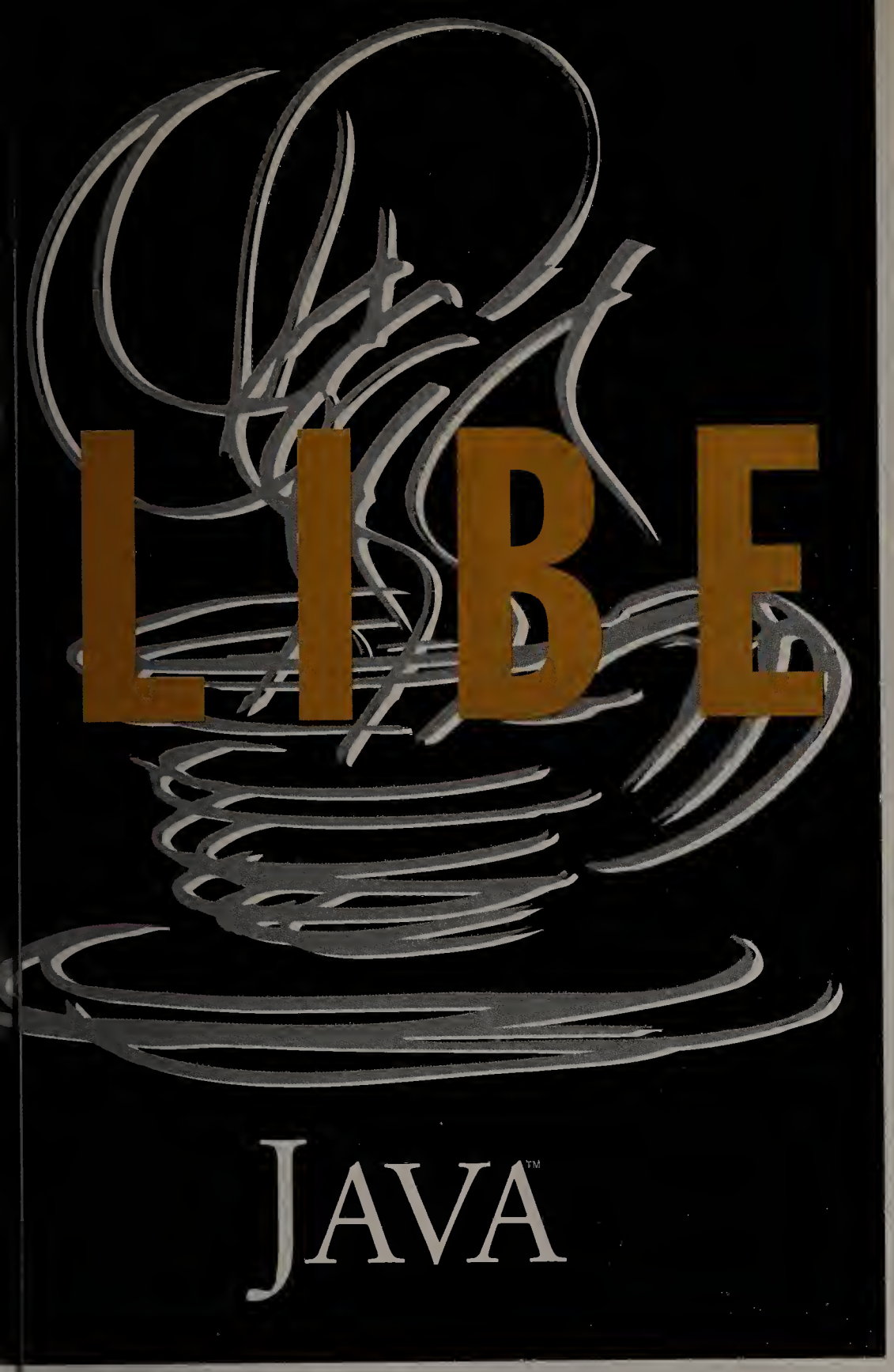

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New Products

StormCloud Development Corp. has announced Talkaway for WebDBC, a discussion group development tool for the World Wide Web.

According to the Seattle company, Talkaway will work with any Windows NT or Windows 95 Web server. It was designed to let users create a discussion group in one hour, without Hypertext Markup Language or Common Gateway Interface coding.

Pricing starts at $295 per server.

▶ *StormCloud Development*
(206) 812-0177
www.stormcloud.com

Microsoft Corp. has announced Microsoft Expedia, a free travel service on the World Wide Web.

According to the Redmond, Wash., company, Expedia lets travelers book air, car and hotel reservations online and browse a library of multimedia travel guides. Tickets also can be purchased online.

▶ *Microsoft*
(206) 882-8080
www.microsoft.com

Microsystems Software, Inc. has announced CaLANdar 4.0, enterprisewide scheduling software that allows databases to exchange data via the Internet.

According to the Framingham, Mass., company, the remote client has one-click connect and synchronized data exchange.

Pricing starts at $495 for 10 users on a LAN system.

▶ *Microsystems Software*
(508) 879-9000
www.microsys.com

Softsource has announced Vdraft Internet Tools, AutoCAD viewing plug-ins that are compatible with Microsoft Corp.'s Internet Explorer and Netscape Communications Corp.'s Navigator.

According to the Bellingham, Wash., company, the commercial version includes a cut-and-paste feature that lets World Wide Web users access libraries of computer-assisted design drawings.

Pricing starts at $50 per workstation.

▶ *Softsource*
(800) 877-1875
www.vdraft.com

Luckman Interactive, Inc. has announced the 1997 World Wide Web Yellow Pages, a 1,200-page directory of 10,000 Web sites.

According to the Los Angeles company, the sites in the directory were selected from 100,000 sites by Luckman's editors. Each is rated by content, design, organization and downloading time.

Pricing starts at $24.95.

▶ *Luckman Interactive*
(213) 614-0966
www.luckman.com

DataViews Corp. has announced WebXpresso, a development tool for interactive, real-time graphics for World Wide Web servers.

According to the Northampton, Mass., company, the latest version of WebXpresso uses Netscape Communications Corp.'s LiveConnect framework, which lets live objects communicate and interact, helping with live interactive content on the Internet.

Pricing starts at $1,000.

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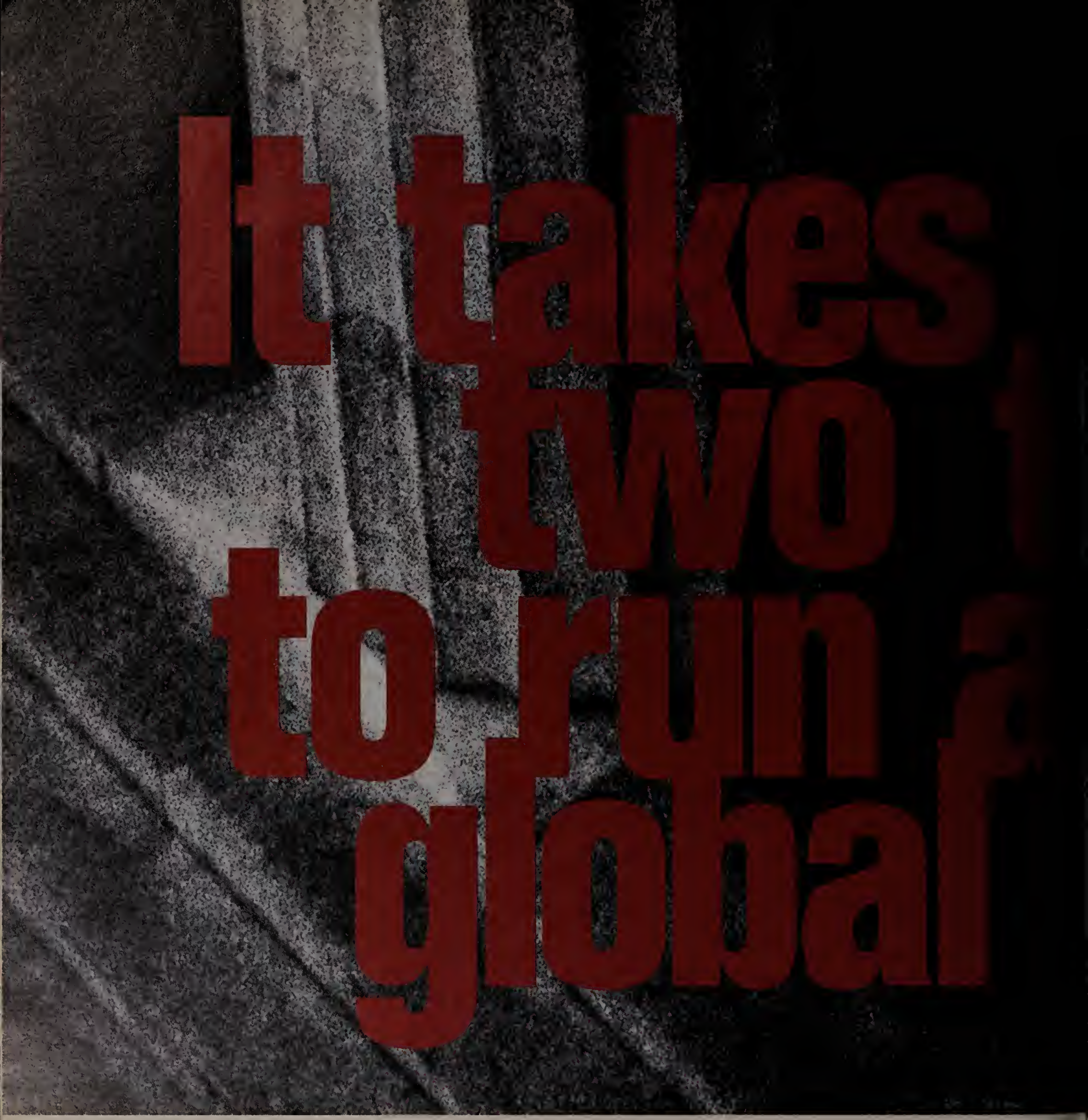

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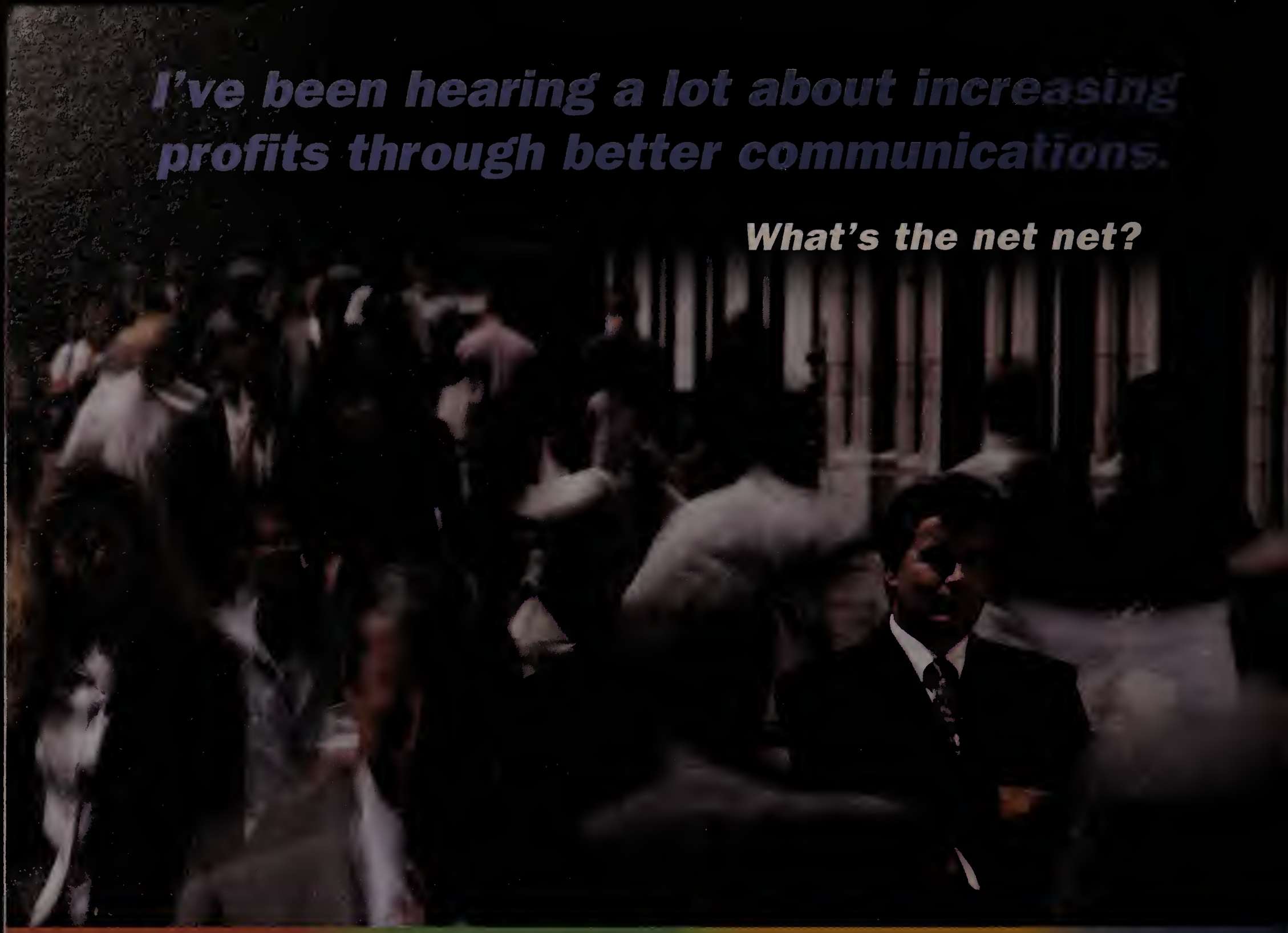

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Federal agency helps other departments deal with IS emergencies, **78**

Corporate Strategies

Multimedia drives training at Marine Corps

New systems save time, cost

By Thomas Hoffman

At the U.S. Marine Corps, weapons are getting more complex as training resources decline. Major Ed King's mission: Use technology to teach a few good men, but with fewer dollars.

King, the multimedia systems officer at the Marine Corps, said multimedia can make classroom-quality instruction available to all 175,000 Marines on a global scale, without the need for classrooms.

Multimedia PCs and software won't take the place of hands-on training in the field, such as weapons training. But King said he expects multimedia-based courses in subjects such as terrorism awareness and the fundamentals of financial management to save the Marines time and money.

King said the flexibility of multimedia will be cost-effective. For example, Marines could be instructed on terrorism when they are deployed in Beirut, Lebanon, or aboard a Navy cruiser.

Multimedia is also more interactive than traditional classroom training. Marines will be able to use audio and video to re-create the sound a diesel engine makes when it needs repairs.

King hopes the project will cut training time by a third. That maps with industry estimates that show multimedia can reduce overall training costs by up to half, said Brandon Hall, editor and publisher at "Multimedia Training Newsletter" in Sunnyvale, Calif.

Companies that have made effective use of multimedia training include Storage Technology Corp., which spent $3.29 million over a three-year period to train its 1,500 field technicians to service storage devices. Costs of the program included lecture and laboratory sessions that lasted four to 10 days, plus travel and

Marines, *page 82*

Ernie DeLullo *runs a Unix-based LAN in the Veterans Stadium press box at each Eagles home game*

SAP expert moonlights by tackling pro football stats

By Julia King
PHILADELPHIA

Five days a week, technical manager Ernie DeLullo works on a mission-critical SAP AG R/3 system at a Philadelphia-based chemical company.

On several Sundays each fall, he also works on another mission-critical system, far from the confines of a corporate cubicle. He sets up three laptop PCs and a Unix-based LAN in the press box at Veterans Stadium, where he is part of a three-member team that electronically records and audits every sack, tackle, pass, fumble and yard gained or lost by the Philadelphia Eagles and their National Football League opponents.

From DeLullo's PC, the numbers are posted to the Eagles' World Wide Web home page (www.eaglesnet.com), giving fans online access to precisely what happens on the field.

"These statistics stay with a player forever."

– Ernie DeLullo

The numbers also are displayed on several press-box monitors, which are scanned continually by scribbling sportswriters and broadcasters who offer play-by-play coverage to fans tuned in on radio and television.

After the game and a final review by NFL bigwigs, the numbers become official. To DeLullo, who looks more like a rumpled sportswriter than a Unix guru in his khakis and tweed sports jacket, that is what makes the work especially mission-critical.

"These statistics stay with a player forever," he said. As official NFL statistics, they are also the final word used to determine a player's compensation. An error in the number of tackles recorded for a defensive lineman who has a tackle quota in his contract could result in a smaller paycheck at the end of the season.

In this respect, DeLullo said, the work is very similar to working in an integrated R/3 environment in which new order data results trigger changes in the

SAP expert, *page 78*

Web-based customer service systems find few customers

By Thomas Hoffman
NASHVILLE

If you could pitch to your boss an Internet-based customer service system that would cut costs by $15,000 per year, would you do it?

It seems like a no-brainer. Online customer services aren't just economical. They give customers just-in-time information on new products and services and eliminate the exasperation that customers experience when they are put on hold.

But it isn't as easy as it looks, said many of the 1,100 managers who attended the International Customer Service Association conference here last month. These managers said they face many technical and cultural hurdles when installing online systems for their companies' clients.

For example, Roadway Express, Inc. (www.roadway.com) launched an Internet service in July that lets customers track their shipments over the Internet. But because few customer shipping departments have Internet access, usage has been "minimal," according to Peter J. Fleming, director of customer service at the Akron, Ohio-based emergency freight company.

"Most of our customers continue to prefer phone and fax" responses to their queries, Fleming said.

And content can be a sore spot. Wigwam Mills, Inc., a Sheboygan, Wis.-based sock maker, is rolling out separate Internet sites to consumers and retailers this month, said Jim Zahn, customer service manager at Wigwam. But in doing so, Wigwam has to make sure it posts product information that isn't too technical for consumers.

Still, Wigwam's site is expected to streamline the company's electronic order-taking. Currently, when a customer calls in to order gray socks with a red stripe, for

Customer service, *page 78*

Roadway's Peter J. Fleming says *usage has been minimal*

Preparing for trouble

Federal agency helps departments handle IS emergencies

By Gary H. Anthes
WASHINGTON

The federal government has set up a computer emergency response team for civilian agencies, and most agree it is badly needed. Unfortunately, the fee-for-service operation may cost too much for many budget-starved departments.

The new Federal Computer Incident Response Capability (FedCIRC) is run by the National Institute of Standards and Technology (NIST) in Gaithersburg, Md. With a $2.8 million budget, FedCIRC will respond to virus attacks, network intrusions and other threats. It will also provide security training and consulting services to individual agencies.

The service, available now, is intended to propagate security information throughout the government, said Marianne Swanson, FedCIRC program manager. "Sharing vulnerability information and the ways to protect yourself will minimize damage and prevent future incidents," she said.

Swanson said FedCIRC will coordinate closely with computer incident response teams at the U.S. Department of Defense, the U.S. Department of Energy and NASA, coordinating security response across the government in response to a recent White House directive.

Just a start

Starting a federal unit to respond to computer threats strikes a modest blow against a big problem, according to the U.S. General Accounting Office (GAO).

"Weak information security is a widespread problem that ... threatens vast amounts of sensitive data, including personal data on individuals, with unauthorized disclosure," the GAO said in a recent report.

Swanson said vulnerability and threat information is shared with the public at FedCIRC's World Wide Web site (www.csrc.nist.gov/fedcirc). However, only subscribers have access to incident response, consulting and training services, she said.

The private sector might do well to check out the FedCIRC Web site. In a recent survey of 325 companies by the American Society of Industrial Security in Arlington, Va., 25% reported having no program for safeguarding proprietary information.

Of those that said they had a program, half said they had no written policies for information systems security.

"There absolutely is a need for this," said John Stephenson, an assistant director at the GAO. He said the Defense Department, which already has several computer emergency response units, provides a model for the NIST offerings to civilian agencies.

Annual subscription fees for FedCIRC range from $50,000 to $250,000, depending on the services chosen.

"We are interested in this, but I'm not sure how widely it would be used throughout the department," said Caren Williams, information security program manager at the U.S. Department of Agriculture's Food Safety and Inspection Service.

Williams said cost would be an obstacle for some units at the Agriculture Department. For example, the agency that handles farm loans needs a great deal of protection because loan data must not be altered and farmers' financial information must be kept private. Public information handled by the Agricultural Extension Service requires far less protection.

Hackers' targets

Examples of government systems at risk

- Computers at the Defense Department were attacked an estimated 250,000 times in 1995. The number of attacks is expected to double each year.
- Annual audits at the Internal Revenue Service show that poor controls leave taxpayer data open to unauthorized access and alteration.
- Systems at the Office of Personnel Management that handle some $36 billion in benefits for federal retirees were "highly vulnerable to misuse" because user access privileges were too broad.

Source: U.S. General Accounting Office, Washington

Project provides elderly with links to Internet

By Mindy Blodgett

As the head of an executive search firm, Herb Halbrecht used his skills and experience to match people — in his case, information systems managers — with a technological challenge.

Now Halbrecht has a new mission: introducing Internet technology to elderly people who otherwise wouldn't have access and persuading firms and IS managers to do the same.

Public service

For a little time and money, technology-savvy people can help others while also winning valuable goodwill for their organizations, he said.

"For a trivial expense, companies can get involved in their communities and make a difference," Halbrecht said. The retired head of Halbrecht Lieberman Associates in Stamford, Conn., presented his mission at a recent meeting of the Society for Information Management (SIM) Interchange in California.

Halbrecht told attendees about a pilot program he participated in through Duke University's Institute for Learning and Retirement in Durham, N.C. In this program, about 18 elderly residents of the nearby Methodist Retirement Community home learned how to use the Internet. They participated in online chats and visited World Wide Web sites.

The project was conducted with volunteers from Duke University. The students served as help desk workers and trainers. Halbrecht also raised funds for the project, which called for buying some computers. Halbrecht said he hopes companies will donate equipment and resources to run programs in their own communities.

Duke has taken over the project for elders and is seeking grants to continue it.

"The project was incredibly successful in alleviating loneliness and improving the quality of [elders' lives]," Halbrecht said.

Pamela Schaad, director of information services at BTI Telecommunications Services in Raleigh, N.C., attended Halbrecht's SIM presentation and said she wants to get involved. "I think it's important for IS folks to get out of the business world now and again and use their expertise to help others," Schaad said.

SAP expert

CONTINUED FROM PAGE 77

systems' financial, manufacturing, inventory and finished goods data. "It's also just like SAP in that it very much requires a team approach," DeLullo said. "Everybody has their part to do, and it can't be done alone."

DeLullo's partners in the press box, Harry Parker and Ted Wolff, use binoculars to spot the plays on the field and enter them into the system before DeLullo audits and posts the numbers to the Web. Dan Wise, an octogenarian who has tapped out play-by-play statistics on an IBM typewriter since 1939, furnishes hands-on systems back-up capabilities.

In his six years of auditing plays at Eagles home games, DeLullo has earned a few thousand dollars, which is fine by him.

At a rate of $60 per game, "I'm not in it for the money," he said. In fact, several years earlier, DeLullo left his full-time, $26,000-per-year job as the Eagles' first systems manager because he needed to make more money.

But his continuing part-time work with the NFL has made him something of a celebrity with his current co-workers.

"I recently got caught by accident by a TV camera during Monday Night Football, and when I got back to work, everybody wanted to know what I was doing," he said.

He is also convinced that his part-time statistician's job played a major role in landing him a previous job as a systems programmer at a Fortune 1,000 company.

"The guy that interviewed me was an ex-college football player," DeLullo recalled. "When he saw what I do for the Eagles on my resume, he hired me on the spot."

Online customer service

CONTINUED FROM PAGE 77

example, customer service representatives have to search a product database to find a match among 35 styles in this category.

The Internet system will allow consumers to choose among different styles and colors, thus simplifying the customer representative's job.

Other customer service departments that have been victimized by downsizing and cost-cutting don't expect senior management to approve new technology funding anytime soon.

For example, Astro-Valcour, Inc. (AVI) in Glens Falls, N.Y., which makes bubble wrap for packaging, has cut the customer service staff in its Orlando, Fla., office from five full-time representatives to one full-time and one part-time employee in the past three years, said Sue Dalbey, customer service/office manager at AVI.

Customers hesitant

Because most of Dalbey's 65 customers need to get immediate confirmation and turnaround on their orders, the majority of them are reluctant to place orders over an electronic transom that is notoriously slow and unreliable, she said.

But for many companies, low-cost Internet-based customer services are hard to ignore. And dramatic technological improvements to the Internet are being made daily.

These include investments that AT&T Corp. and MCI Communications Corp. are making to increase bandwidth and automatic response software used by companies such as The New York Times Co., said Mark W. Coe, president of Coe-Truman Technologies, Inc., a consultancy in Chicago. The Times' system responds to every electronic-mail message that a visitor sends, Coe said.

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trying to organize

a plate of

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Marines go multimedia

CONTINUED FROM PAGE 77

per diem expenses.

Using multimedia, the same training was done in 60% less time than the lecture and lab sessions and at a cost of about $1.75 million, Hall said.

King said he hopes to have the first of the Marine Corps' three learning centers up and running by Christmas. The Marines have earmarked $200,000 to cover the hardware and software used in the prototypes, including a 20-seat intranet-based learning resource center at Camp Pendleton, N.C.

Systems in use

The Marines use Pentium-based PCs and servers from Fremont, Calif.-based Dolch Computer Systems, Inc., running multimedia software from Starlight Networks, Inc. in Mountain View, Calif. The prototypes run Novell, Inc.'s NetWare 3.5 and 4.1 network operating system software, but the Marines will likely migrate to Windows NT in the future, King said.

It will take at least six to eight months to determine whether the Marines have chosen systems and courses that troops prefer, he said. King and his peers are developing a project campaign to win additional funding from Congress over the next three to five years.

"We hope to see a return on investment after a couple of years," he said.

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State initiative keeps Intel mum on plans

By Terho Uimonen
TAIPEI, TAIWAN

Election issue

Intel Corp. is here celebrating the 25th anniversary of the first microprocessor, but a California ballot issue is spoiling the party — even in Asia.

Speaking at a press event here last week, Albert Yu, Intel's senior vice president and microprocessor group general manager, had precious little to say about the chip giant's plans. Proposition 211, a California ballot initiative that would make it easier for shareholders to sue companies that fail to carry through with plans they have announced, was the main reason he gave for not talking about future plans or products.

"I can't tell you anything about the future without major qualifications," Yu said.

Proposition 211 goes to voters Nov. 5.

Companies oppose measure

The proposition has provoked strong opposition among California's high-tech companies, many of which feel that the volatile earnings in the information technology industry would make them easy prey for so-called nuisance shareholder lawsuits.

Instead of mapping Intel's plans, Yu outlined trends in the PC industry, including the increasing prevalence of the networked PC, better graphics and improvements in automatic diagnostics.

Yu predicted that the Internet will continue to grow in importance and change the landscape for IT and other companies.

"Every industry will be changed, from Intel to publishing," Yu said. "I think we are just in the very beginning of this."

Meanwhile, the evolution of the microprocessor will continue to follow Moore's Law, which says that the amount of transistors on a chip doubles every 18 months, if the industry can overcome a few barriers, he said. "And the best is yet to come," Yu said.

Uimonen writes for the IDG News Service's Taipei bureau.

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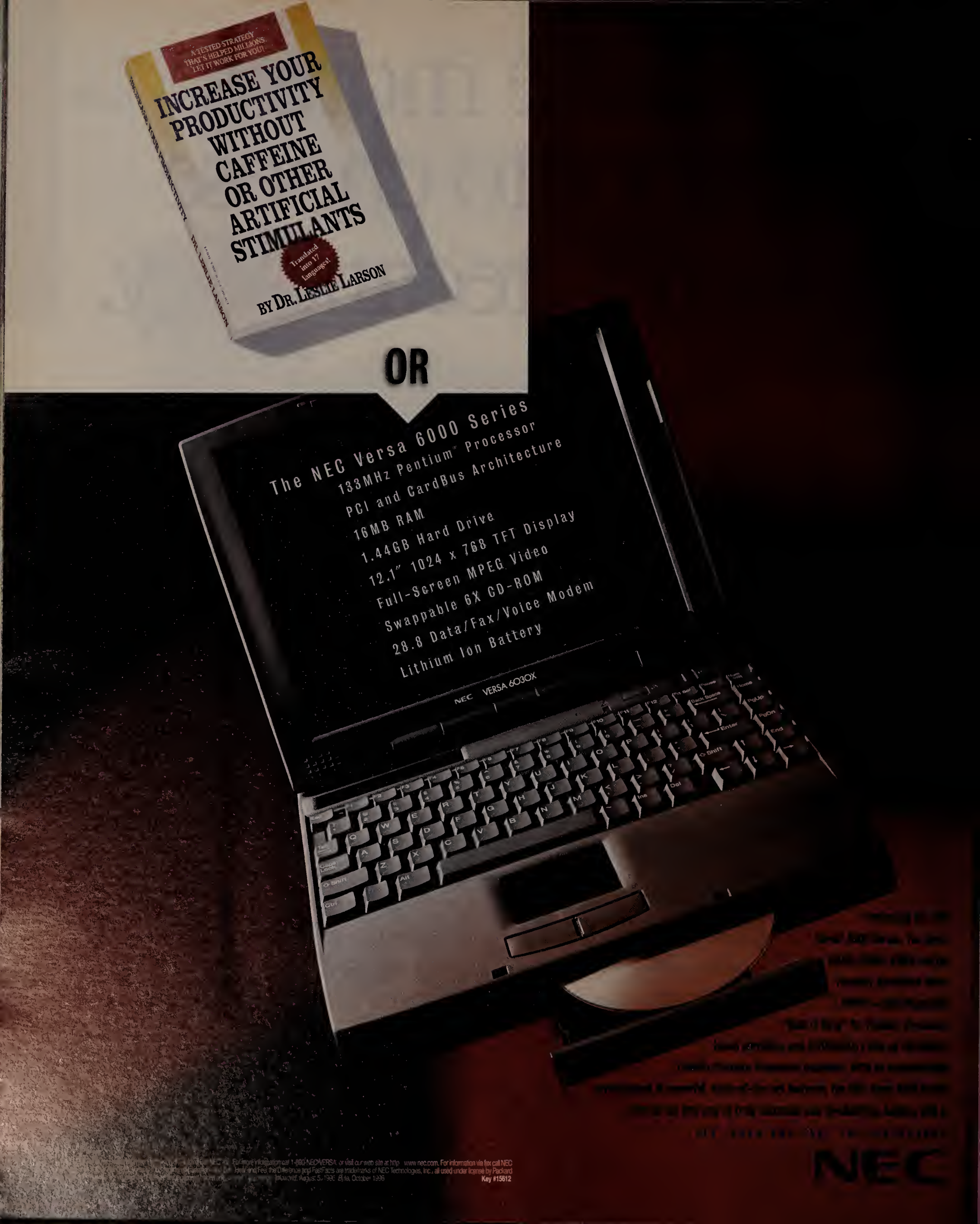
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C. 5,000 – 9,999	❒	❒
D. 1,000 – 4,999	❒	❒
E. 500 – 999	❒	❒
F. 100 – 499	❒	❒
G. 50 – 99	❒	❒
H. 20 – 49	❒	❒
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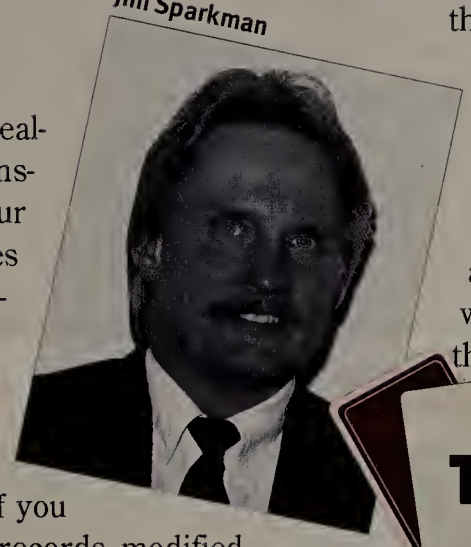
Jim Sparkman

EXPLANATION: Literally. You realize, usually during the data-cleansing process, that many of your transactional legacy data sources don't provide for any sort of transactional "time stamp." There's no easy way to find out the last time a record was updated. The implications for your warehouse are enormous. Think about it: If you can't automatically extract the records modified since a specified date, how will you keep your warehouse current without a full-scale importing of all transactional data? And if you find yourself attempting a wholesale port of legacy data, "you're likely to find there are not enough processing hours in the day to keep your data warehouse current," says Jim Sparkman, lead systems specialist at Valero Energy Corp. in San Antonio, Texas. Sparkman says he ran into this problem.

SOLUTION: First, try to catch that potential problem as early as possible in the warehouse design process, Sparkman says. After all, once news of a successful warehouse application gets out, "you find yourself overwhelmed with users lining up to get their departmental data into the system," he says. That's not the moment you want to deal with the hassle of accommodating that "timeless" material in your warehouse operation. Sparkman's solution was to write a comparison utility that sifted through the transactional data and flagged records that had been changed since the last porting. Those records were then extracted from the legacy data in order to update the warehouse. "It's not the optimal way to refresh your warehouse, but it will help you to minimize the sheer volume of data you'll be working with," he says.

The query from hell

EXPLANATION: Your warehouse is built, it's working, users actually seem happy with it. Then comes that query, the one you didn't anticipate. Answering it requires a scan of the entire database. Eight hours. And the system locks up, usually "when you're trying to [demonstrate] how wonderful it is to your CEO," says Alan Paller, director of research and education at the Data Warehousing Institute in Bethesda, Md.

SOLUTION: It's not an easy one. Plan ahead as much as possible, Paller says. Summarize and index key data in anticipation of the type of broad queries that could stop operations cold. But err too much in that direction and you end up with the opposite scenario — what Paller calls "the

Cards, *page 88*

By Alice LaPlante

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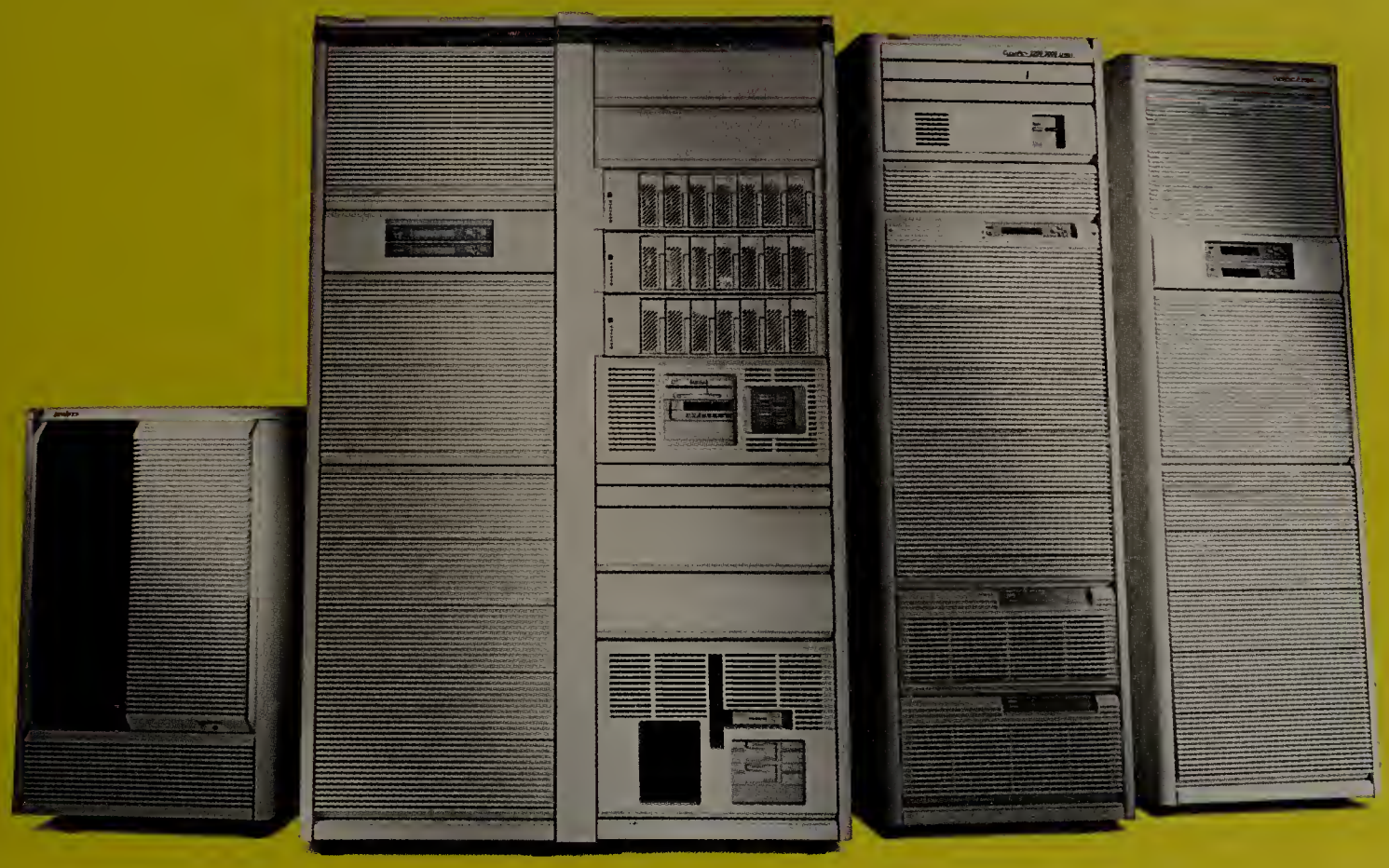

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CONTINUED FROM PAGE 85

load from hell." That is, such a heavily indexed warehouse that it takes forever to update. Trying to find a middle ground can be frustrating and difficult. "Enormous power is the only real solution," he says. "Until that's readily available, you need to find the balance between these two equally undesirable outcomes."

Fickle users

EXPLANATION: Politicians in an election year aren't the only ones who flip-flop. In any information technology project, users are notorious for committing one or more of the following three crimes against technologists: not being clear about what they want; changing their minds halfway through a project; or constantly asking for more as development progresses. When building your warehouse, expect that type of behavior in spades. After all, the point of these kinds of projects is to empower nontechnical users. So you'll find your users often violently exercising their right to (ahem) empowerment.

SOLUTION: Ask once. Ask twice. Paraphrase their answer(s) and repeat them back to users. Ask again. Then document it. "I always ask the same question in multiple ways and on multiple occasions," says Christopher Naya, vice president of information services for Creditwatch, Inc., a commercial collection agency in Arlington, Texas. And Naya keeps checking back. He makes sure users fully understand the implications of what they've asked for. He demonstrates the project at critical design points. And he constantly probes for possible misunderstandings. Beyond that, he also makes it clear there's a line beyond which he can't be pushed. After all, he's got budgets and schedules to meet. "You've got to be both extraordinarily flexible and extraordinarily firm," he says.

Snake oil salesmen

EXPLANATION: OK, so technologists should be used to this one. But you may still find yourself outmaneuvered by a clever database, querying tool or middleware vendor. Most commonly, managers express dismay at assurances about performance that turn out to be grossly optimistic. "You'll see these demos that run speedily and flawlessly on vendor machines, but then the products falter when you try to develop for your architecture," says Mike Lowe, the database administrator at Boise Cascade Corp. in Boise, Idaho. But Lowe is even more critical of those vendors intent on aggressively infiltrating his company by making stealth sales calls directly to users. "If they can, they get to a senior vice president and try to excite them with their product," Lowe says. "They figure if it's a nontechnical person, they'll be easier to sell." Lowe has found himself under pressure to install a particular product unless he can prove why it would be a serious mistake. "This obviously isn't the best way to investigate new technologies," he says.

SOLUTION: Lowe believes prevention is the best — and perhaps only — cure for vendor woes. "References," he says. "We ask for lots of references." And because naturally he knows the vendor will hand over the names of only "friendly" customers, he always delves deeper during his interviews with those customers. So after the site visit and the querying of technical personnel, Lowe goes straight to business managers and users and asks *them* how they like the product. "You learn a lot more that way. They're less likely to take the vendor's line, less tame," Lowe says. He also makes it clear to vendors that *he* will choose the time and place in which senior management will see data warehouse demonstrations or hear sales pitches. He says he won't tolerate vendors that don't respect his wishes. "I make it clear that we will approach management as a team — but not until I am ready to proceed," he says. ■

LaPlante is a freelance writer in Woodside, Calif.

F.Y.I.

Don't get mad, get results

With all of today's "partnership" talk, some customers are uneasy about putting strict performance penalties in contracts with information technology vendors. The penalties lead to finger-pointing and recrimination, they figure, rather than the cooperation needed to solve complex systems integration problems.

But performance clauses in contracts can work, consultant Joe Auer argues, and they don't have to involve huge piles of cash. "We call them remedies, not penalties," says Auer, president of International Computer Negotiations, Inc. in Winter Park, Fla. They're aimed at delivering results without going to court, he says. The first level of remedies should be corrective, Auer says, such as "adding more people or replacing the equipment." The next level might involve financial penalties for the vendor. The third could include terminating the contract and getting a full refund.

Sometimes the best remedies don't involve money at all. If an outsourcer failed to finish a key report on time, Auer suggests, the contract could require the vendor "to hand-deliver a report to your boss' boss' boss and explain why [the vendor] can't do things on time." Auer cites a $3.5 million application development contract that specified that the problems project managers at either company couldn't solve would be bumped up to the vice presidential level in 24 hours. Because neither project manager wanted to look bad in front of senior managers, "there wasn't one dispute that needed to be solved by the senior officers," Auer says. — *Robert L. Scheier*

Quotable

Guy Wood, CIO at United Grain Growers Ltd. in Winnipeg, Manitoba, for the past 11 years, offers the following tip to counterparts who want to stay at one place awhile:

"Don't get wrapped up in trying to show how wonderful IS is. You should decrease, not increase, expectations."

Launched June 1980

Rotate!

By Alan S. Horowitz

Advocates say job rotation can improve morale, generate ideas and help align IS with the rest of the business. So why do so many give up?

The military uses it in officers' training school: One day you're cleaning pans, the next day you're acting like a general.

Temporary employee rotation: Information systems uses it, sometimes to considerable advantage, sometimes not. It's a strategy worth considering, some IS managers say. But beware; it often isn't easy to pull off.

Typically, rotation assignments last a few weeks. Steve Beitler, senior director of financial processes and systems at Sears, Roebuck and Co. in Hoffman Estates, Ill., requires each IS employee to spend one or two weeks during their first year on the job at a Sears store.

At the store, IS employees serve customers, work in the back office and even stock shelves.

Trustmark Insurance Co. in Lake Forest, Ill., tries to have IS people do four- to six-week internships in their first two years on the job in user areas such as claims payment. On a more ad hoc basis, staffers rotate within IS, says Ebby Khazeali, senior vice president and chief information officer at Trustmark.

Rick Partridge, group human resources manager of information resources at Georgia-Pacific Corp. in Atlanta, says a bigger time commitment is worthwhile.

He offers IS people "career looping," which involves rotating systems employees within IS and outside IS to marketing, production, planning and other areas.

The rotations can last from six to 24 months. Employees may stay in their new departments when the rotations are up, but most have returned to their original locations.

Why rotate?

These companies use rotation because there's the potential for a strong payback. "People who do it come back a whole lot more enthusiastic. They have a much improved attitude," Khazeali says.

They also begin to understand the customer's viewpoint. Greg Walton, vice president and CIO at Carilion Health System in Roanoke, Va., had his IS people work at the help desk to gain empathy for their clients. Those staffers came back saying, "I wish I had understood this before," Walton says. "It made them more appreciative of the chaos of the help desk."

IS employees who rotate jobs can generate valuable, practical ideas. Beitler says rotating IS staffers in Sears stores helped the company improve the efficiency of a marketing program in which Sears offered financing with no interest to its customers. IS staffers working in the stores saw what salespeople had to go through trying to implement the marketing program at the cash register, he says.

Greg Walton, vice president and CIO at Carilion Health System in Roanoke, Va., rotated his IS people onto the help desk. "It made them more appreciative of the chaos of the help desk."

The IS folks pinpointed the problems that annoyed customers and slowed the sales process. Then IS was able to change the system so it ran more smoothly.

"Today, you need to have both IT people and businesspeople working together," says Carol Brown, an assistant business professor at Indiana University in Indianapolis. She has studied employee rotation and says it is an effective way to bring people together.

"You build an interpersonal network. You increase trust by working alongside others. I see these as goals [of rotation]," Brown says.

Crunch time

With all of the benefits of rotation, why doesn't everyone do it?

Finding the time to allow it is the biggest impediment, most observers say. Frank Niepold, manager of electronic publishing at Chubb & Son, Inc., an insurance company in Warren, N.J., is a big fan of rotation. But he doesn't do it.

"I think when people have good employees, they're just loath to give them up, even temporarily," he says.

Walton had to abandon his program because of "workload issues," even though employees worked the help desk for only four hours per month and reacted positively toward the program.

He says even when employees felt they had the time to rotate, they got pressure from their team members to stick with their normal job responsibilities.

Making it work

With all these time pressures, strong management support is especially important for any rotation program to survive.

Beitler says he makes it clear that employees must work in a Sears store during their first year on the job because he will check that they did so when they come up for review.

Keeping the process simple and informal helps. District or regional managers arrange the rotation at Sears, not human resources.

There are no payroll issues because the employees remain in Beitler's department.

Those company officials who say they can't afford to give their employees time to rotate also say they don't have time to send them for training, Beitler says.

Previously, Beitler worked at a manufacturer, and "manufacturers have been doing [rotation] forever," he says.

IS people "are very good at producing programming but often are not as good at producing a well-rounded individual who has a very good knowledge of the business," he says.

Partridge says, "A businessperson [who spends] a year in a technology setting is better equipped to run a business. Conversely, someone who has grown up in a glass house has a better appreciation of the business process [after rotating] and can come back and deliver projects that actually bring value and solutions to the customer." ■

Horowitz is a freelance writer in Salt Lake City.

Launched August 1984

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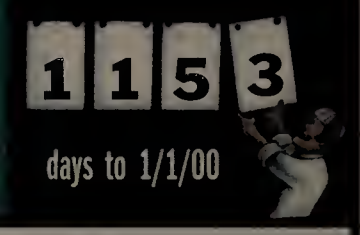
YEAR 2000 SCOREBOARD



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Tips from Texaco

Knowing what you shouldn't do is sometimes the most valuable advice you can get. Information technologist Carl Roecker points out the following possible trouble spots based on his experience leading the corporate year 2000 conversion at Texaco USA in Houston:

D O N ' T

1) Don't assume the output of a code-assessment tool from vendor A can be used as input to a conversion tool from vendor B. If the output can be used, it may require costly help from consultants.
2) Don't waste time having low-level staff ask vendors when their software will be year 2000-compliant. The CEO or other senior managers should push the vendor for an answer.
3) Don't think you have to hold big meetings to convince people the problem is real. One-on-one sometimes works better.
4) Don't wait too long to develop your compliance standards. The sooner you know what it means to be "compliant," the sooner you can adjust your conversion and test plans accordingly.
5) Don't forget about the other systems inside and outside your organization that trade data with the systems you're fixing. It does no good to fix one system only to have it "reinfected" by a customer's or supplier's noncompliant system.

Keep 'em happy

Year 2000 conversion work will — without a doubt — leave programmers busy for the next few years. But they have to be happy, too, argues year 2000 consultant Bill Pirkle in Seattle.

Pirkle says programmer morale should be management's greatest concern in the next three years because, for most companies, their existence will be in programmers' hands.

Pirkle, who dispenses millennium conversion advice at his World Wide Web site (www.pirkle-websites.com), sees the following as possible morale breakers for programmers:

- Contractors who make two or three times as much as in-house programmers for doing the same work.
- Having to work 10-hour days on weekends and third shift while management staff and contractors managing the effort work 8 a.m. to 5 p.m.
- Being taken off glamorous, career-enhancing projects to do mundane maintenance programming.
- Continuously responding to management requests for updated forecasts and project reports.

Pirkle says in firms where conversions are already destined to fail, the programmers will be the first to realize it.

Driving the point home

Are you still having trouble selling your management or corporate lawyers on the severity of the year 2000 date-change problem? Print out "The Year 2000 'Millennium Bug,'" by Jeff Jinnett at LaBoeuf, Lamb, Greene & MacRae, a law firm in New York. His paper warns of nasty and personal legal problems for officers and directors of companies that don't think through their year 2000 strategy.

For example, corporate officers or board members could be held personally liable by shareholders if a company fails to disclose its year 2000 problems.

The paper advises corporate officers to keep detailed records of year 2000 efforts to prove they exercised due diligence in case the fix doesn't work and shareholders sue.

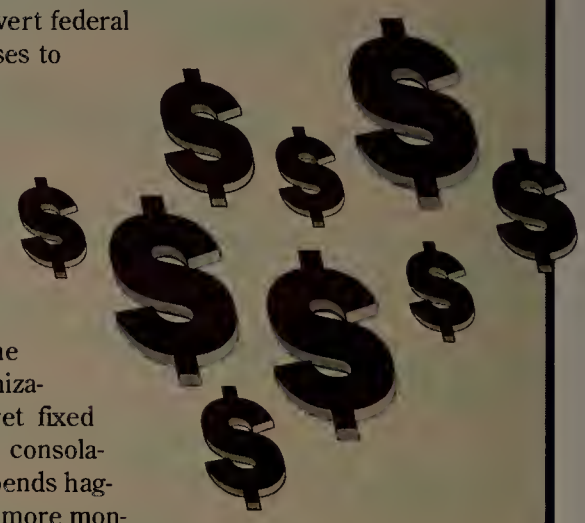
It's also crucial, he says, for companies to ask their software vendors in writing to make their products year 2000-compliant. Jinnett warns that failure to at least ask and to prove you asked could endanger your rights to sue the vendor if the software later fails. The article is available at www.llgm.com/articles/jinnett/article.htm.

Huffin' and puffin' to 1/1/00

"Sin taxes" on liquor or cigarettes have long been a favorite way for governments to fund projects such as those for schools or health care. Now the State of Nebraska is using its cigarette tax to help fund another messy but vital task: year 2000 work on an estimated 15 million lines of code.

Under a law passed in the spring, about $2.6 million in cigarette tax revenue will go to fund year 2000 work in each of the next four years, says Michael Calvert, a legislative fiscal analyst.

Calvert says the project cost also has shrunk by about a third from the original $30 million estimate because the state found applications that can get by without being fixed. But more money is needed. Calvert says he hopes the federal government will come up with funds to fix applications that support its mandated programs or that the feds will at least let the state divert federal funds intended for other purposes to year 2000 work. Some agencies that charge for licenses or other services also may have to hike those fees to pay for the date changes.

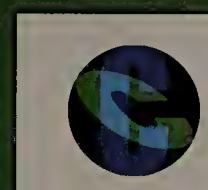


In any case, Calvert predicts some hefty negotiations among state agencies, year 2000 contractors and the state information systems organization over which applications get fixed and who pays for it. One small consolation: The more time everyone spends haggling in smoke-filled rooms, the more money they'll have to work with.

Upcoming events

Want to learn more about the year 2000 problem? You may want to make plans for December:

- **Digital Consulting, Inc.** (DCI) will host a Year 2000 Issues & Answers Conference and Exhibition **Dec. 10-12** in Chicago. The conference will feature 11 breakout sessions, split between management and technical issues. For more information, contact DCI in Andover, Mass., at (508) 470-3880; Fax: (508) 470-0526. E-mail address: ConfReg@DCIexpo.com. World Wide Web address: www.DCIexpo.com.
- **The Life Office Management Association** will hold a year 2000 workshop **Dec. 19-20** in Atlanta. Attendees can share conversion strategies and some "best practices." For more information, call the association in Atlanta at (770) 984-3733. Fax: (770) 984-6419.



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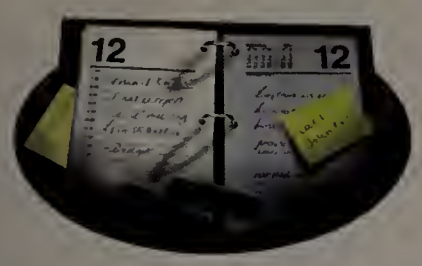

December conferences

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The Business Online Conference. San Diego, Calif., **Dec. 3-4** — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880. Fax: (508) 470-0526. E-mail address: ConfReg@DCIexpo.com. World Wide Web address: www.DCIexpo.com.

DCI's Outsourcing Lifecycle Conference. Orlando, Fla., **Dec. 10-12** — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880. Fax: (508) 470-0526. E-mail address: ConfReg@DCIexpo.com. Web address: www.DCIexpo.com.

Year 2000 Issues and Answers. Chicago, **Dec. 10-12** — Contact: Digital Consulting, Inc., Andover, Mass. (508) 470-3880. Fax: (508) 470-0526. E-mail address: ConfReg@DCIexpo.com. Web address: www.DCIexpo.com.

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TECHNOLOGIES

DB/Expo '96. New York, **Dec. 2-6** — Contact: Blenheim NDN, Mountain View, Calif. (800) 232-3976 or (415) 966-8440. Fax: (415) 966-8934. Web address: www.shownet.com.

NetForum '96. San Francisco, **Dec. 3-5** — Contact: MIS Training Institute, Framingham, Mass. (508) 879-7999. Fax: (508) 872-1153. E-mail address: mis@misti.ccmail.compuserve.com. Web address: www.misti.com.

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Hand-Held and PDA Expo '96. San Mateo, Calif., **Dec. 4-6** — Contact: PDA, Inc., San Francisco (415) 252-8008. Fax: (415) 252-8055. E-mail address: info@wmsltd.com.

Wireless in the Local Loop. San Francisco, **Dec. 9-10** — Contact: IBC USA Conferences, Inc., Southboro, Mass. (508) 481-6400. Fax: (508) 481-7911. E-mail address: reg@ibcusa.com. Web address: www.io.org.

The Personal Computer Outlook. San Francisco, **Dec. 9-10** — Contact: Technologic Partners, New York (212) 343-1900.

Fall Internet World '96. New York, **Dec. 9-13** — Contact: Mecklermedia, Westport, Conn. (800) 632-5537 or (203) 226-6967. Fax: (203) 226-6976. E-mail address: fiw96@mecklermedia.com. Web address: events.iworld.com.

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Leilani Allen

Minorities and IS: What is equality?

IS managers say they hire and fire African-Americans based strictly on performance. But is equal treatment really so cut-and-dried?

MARC BERLOW

Information technology, as one of the newer disciplines in the workforce, doesn't carry many of the legacies of discrimination found in other professions that have been overwhelmingly dominated by white males. Women have certainly made considerable advances, especially in application development. IT also has a large number of foreign-born employees drawn to the technical disciplines, probably because language skills are considered less important than they are in the traditional business disciplines.

Performance standards

So what about our record with African-American and Hispanic native-born Americans? The numbers vary considerably nationwide, but those minorities are still underrepresented in our ranks. Yet overwhelmingly, IS managers say they hire, promote and fire based strictly on performance.

Is equal treatment really so cut-and-dried? Are there more subtle issues at work?

Consider the case of "Pam," a 35-year-old senior programmer. An African-American with seven years of experience, she was hired as chief resource for a highly visible project. The programming was to be outsourced to a third-party provider who planned to install and use a new development tool.

The business user department had minimal experience with helping to design systems. The application was to interface with the core production system, which required careful coordination with the group that would maintain the production environment.

Pam was placed in the middle of all this. She was brand new to the company, the environment and certainly to the development language. As one can so clearly see in retrospect, the project was headed for disaster.

The development tool didn't work as advertised, the interface with the production system brought down the system repeatedly, the users were dissatisfied that everything was more complicated and took longer than expected. Management was called in to handle increasingly troublesome status meetings.

The project finally went into production, but two weeks later, Pam resigned. She felt she had failed everyone and had lost so much face in the process, she couldn't possibly move on to anything else. Pam felt the double burden of being a double minority — an African-American and a woman. Having had to work harder to succeed, she couldn't simply take failure in stride. She also implied that her failure would lower management's view of African-Americans in general.

Other opportunities

But everyone makes mistakes. Management responded to her, and no one held her exclusively — or even largely — responsible for what happened. There would be future projects, more carefully suited to her skills set, where she would have the opportunity to demonstrate her abilities.

Judgment call: Pam left anyway to go to a shop downtown where there was a higher percentage of minority staff.

In retrospect, did management owe her and other minorities a special measure of encouragement to really treat them equally?

Is equal treatment really equal when white males (and, to a lesser extent, females) have a much longer record of success in white-collar professions? They have hundreds, if not thousands, of role models who tried and failed. Do we ever read about African-American failures or only about those people who "made it in a white man's world?"

Prompt intervention by management could have indicated to Pam that the company certainly didn't hold her responsible for all the project's troubles. Her manager might have provided some balance by carving out time for another project where Pam stood a better chance of succeeding.

Most of all, management might have made it clearer to Pam and all minority employees that her performance is judged as an individual and not as a representative of her race. It's time to lighten some of those burdens. ■

Allen's column deals with the kinds of people issues managers face every day but are reluctant to discuss openly. Each column is based on a real-life situation. The names and certain circumstances are changed to protect confidentiality. Allen, a director at Tenex, a management consulting firm in Burlington, Mass., invites readers to share experiences with her via E-mail at lallen@tenex.com.

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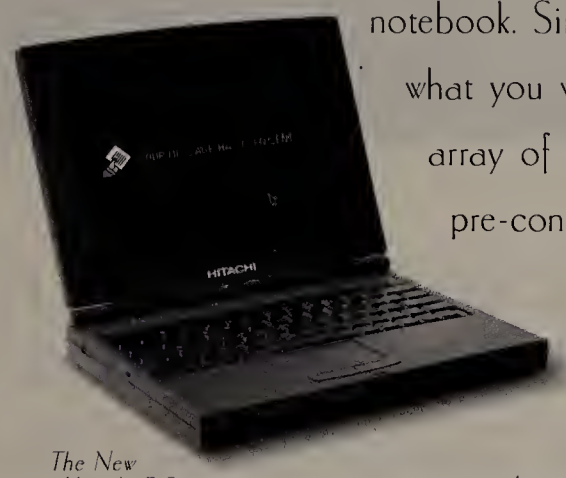

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Buyer's Guide

Change is coming

Each network operating system shines at something, but no vendor excels in all the key areas, according to a *Computerworld* survey of IS managers

– By Lynda Radosevich

Although the leading network operating systems do a good enough job when it comes to linking desktop computers, servers and peripherals, no single commercial package excels in all the network services that users need. Therefore, you have two choices: Pick a vendor that is strong in important areas or operate a multivendor network.

If you're trying to pick a network standard, the debate today generally boils down to Novell, Inc.'s NetWare vs. Microsoft Corp.'s Windows NT.

"If you're already a Novell shop, and you have a substantial investment in NetWare, your first choice is NetWare and [Novell Directory Services]. If you're not a Novell shop, your first choice is NT," says David Passmore, president of Decisys, Inc., a network consultancy in Sterling, Va. Banyan Systems, Inc.'s Vines and IBM's OS/2 are really considerations only for companies that already have the network operating systems and want to protect their investment in training and expertise, he says.

When choosing between NT and NetWare, users and experts say NT is still most effective as an application server, and the print-and-file services are secondary. "NT doesn't compare to NetWare for file, print or directory services, but it's easier to run databases on it," says Glenn Gabriel Ben-Yosef, president of Clear Thinking Research, Inc. in Boston.

Yet market dynamics, such as the Microsoft name, more than technical proficiency, are what's driving today's network operating systems decisions, according to experts, users and respondents to a 200-user telephone survey conducted for *Computerworld* by First Market Research Corp. in Austin, Texas. The respondents were using NT 3.51 or later, NetWare 4.1 or later, Vines 6.0 or later or IBM's OS/2 Warp Server 4 or later. The key strengths and weaknesses they cited follow:

Network operating systems, *page 104*

Overall satisfaction ratings

Base: 200 IS managers	A Very good	B Good	C Average	D Poor
NetWare	26%	48%	26%	0%
Vines	24%	52%	12%	12%
OS/2 Warp	24%	46%	22%	8%
Windows NT	16%	56%	18%	4%

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CONTINUED FROM PAGE 101

Microsoft's Windows NT

Not surprisingly, users say NT is a good system for companies that want tight integration with Windows or NT desktops and companies that want to stick with Microsoft as their single vendor.

"We are a Microsoft shop, so it's very easy to integrate NT with the Windows desktops," says Denny Lane, information services coordinator at the Cedar Rapids, Iowa, division of a Fortune 500 food manufacturer. "We don't have vendors pointing at one another with a problem because we're 100% Microsoft. Some people don't like that, but for us, it's an advantage."

However, NT has a significant list of shortcomings, users say. It doesn't have an adequate directory service yet.

It received the fewest "very good" votes for ease of use by end users, and users ranked Microsoft least favorably of all the companies in terms of support staff responsiveness. Also, NT tied with Vines in lowest score for performance, and survey respondents gave NT the fewest "very good" votes for reliability.

"The biggest headache with NT systems is still the stability," says James Lincoln, software development supervisor at Omni Healthcare, Inc. in Stockton, Calif.

Survey respondents say overall reliability is the most critical reason for their choice of a network operating system, and NT is weak in that department.

Despite the apparent shortcomings of NT, more NT users said they would recommend NT to other corporate buyers than did users of any other network operating system.

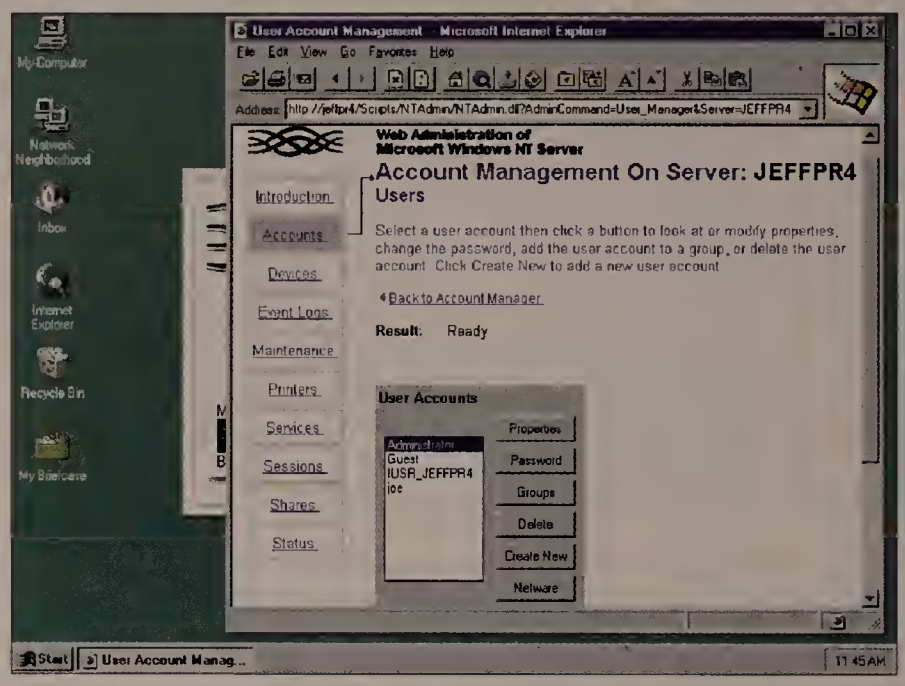
NT won "would recommend" votes from 92% of its users.

In addition, only one NT user, compared with six for NetWare, 12 for Vines and 13 for Warp Server, cast a negative vote, saying they wouldn't recommend their network operating system.

Why the discrepancy? Cost is one reason: NT users gave Microsoft the highest marks in pricing.

But more important is the perception that although the 4-year-old NT still may be a bit shaky, the Redmond, Wash.-based Microsoft is rock-solid.

While Novell and Banyan have had enough management shake-ups to worry even die-hard fans, "it's hard to go wrong with Microsoft," says Brett Arquette, an IS manager at the 9th Judicial Circuit Court of Orange County, Fla. "If they have any bugs, they'll fix them. You know they are never going away or will be bought. They have the manpower and dollars to keep enhancing their products."



Playing off its strength as an application server, Windows NT gets 'very good' grades from only 16% of users, but 56% rate it 'good' in terms of overall satisfaction. It may be too early for some to judge NT – 6% of users said they don't know how to grade it.

Survey snapshots

Based on interviews with 50 users per vendor

• Users trust the reliability of their network operating systems. Each tallied As, but none matched Novell's 22.

	A	B	C	D
Novell	44%	28%	16%	2
Banyan	38%	38%	18%	4%
IBM	36%	34%		
Microsoft	2			

• Few users believe their vendor's technology is cutting-edge; Banyan users least of all. The majority of Banyan users gave Cs and five gave Ds for technology leadership, but the other vendors received mostly Bs.

	A	B	C	D
Microsoft	32			
Novell	30%	40%	18%	2%
IBM	22%	38%	26	
Banyan	14%	30%	32%	1%

• Users have reason to be skeptical of vendor promises. All four vendors scored their least number of As and the most Ds in their ability to deliver on promises.

	A	B	C	D
Novell	18%	16%	36%	4%
Banyan	16%	22%	26%	14%
IBM	14%	32%	32%	
Microsoft				

• Bonyon had few strengths in our survey, but those it does hove, such as its directory service, moke on impoct. Banyan received As from 42% of its users. Novell was closest with 30%, but Microsoft ond IBM had 12% and 1%, respectively.

• Novell appeared to present the fewest hordwore compatibility problems. Novell posted As from 44% of its users, but the other network operating systems had half as mony ond olso scored some Ds.

• IBM ond Novell tie for the lead in performonce. The user majority for both vendors gave As; the other vendors received mostly Bs.

(Results are not projectable)

Novell's NetWare 4.1

Information technology professionals say NetWare provides the best print-and-file services because that, rather than application services, is its forte. NetWare's maturity as a network operating system pays off as well. More NetWare users ranked NetWare as "very good" in terms of reliability than did users of the other systems. (*Computerworld*'s survey was conducted before Novell recently announced the successor to NetWare 4.1 — IntraNetWare).

Also, NetWare finally has delivered a directory, Novell Directory Services (NDS), designed to rival Banyan's StreetTalk for enterprise-level services. NDS lets administrators set up and maintain an entire company's network quickly.

It can serve as the central directory for network applications such as electronic mail and groupware, and users can log in to the network anywhere and access the network files and applications they need. Users and analysts say it's a good choice for current NetWare users who want to move from a workgroup to an enterprise model of network computing. "It's nice to log in from pretty much anywhere," says Lincoln, whose firm uses NetWare as well as NT. "That's been one of the more successful aspects of [NetWare 4.1]."

Orem, Utah-based Novell's continued dominance in terms of installed base offers another advantage — an abundance of third-party products and expertise. "Market share. That's why I'm here," says Bob Sprowl, technical support manager at Occidental Fire & Casualty Co. in Raleigh, N.C. Sprowl says he prefers Vines, but market forces make NetWare the more logical network operating system choice for his company. "If I need to change something in the NetWare network, I can find tools, support and people to build things for it," he says.

Network operating systems, *page 108*

Strong in print-and-file and directory services, NetWare tops the field with 26% of users rating it 'very good' in overall satisfaction. NetWare was the only network operating system not to get 'poor' votes in overall satisfaction.

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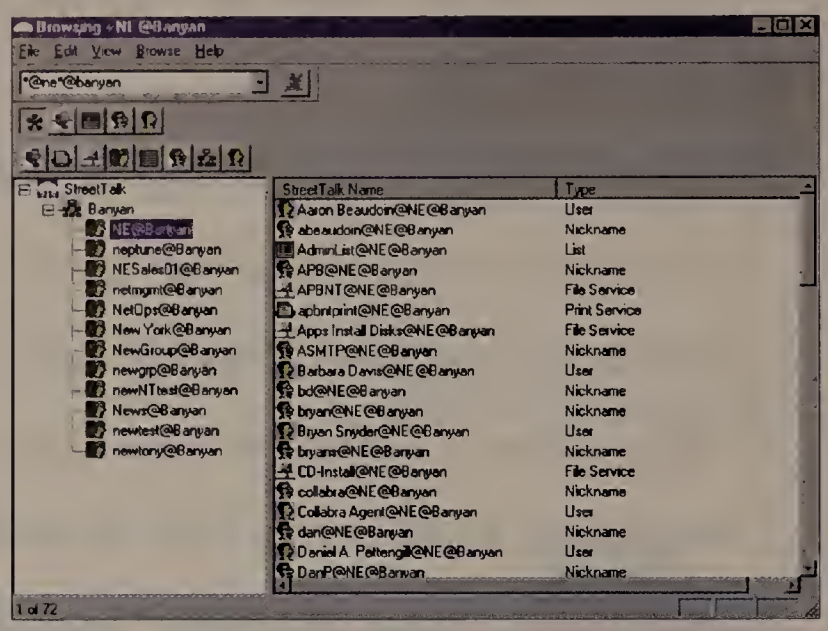
CONTINUED FROM PAGE 104

Vines' StreetTalk directory is still a strength, as is its ease of use. But Vines gets 'poor' ratings from 12% of its responding users in terms of overall satisfaction, and 24% say they wouldn't recommend it.



Banyan's Vines

Users still love Vines' StreetTalk directory service, which received considerably more "very good" votes from survey respondents in terms of scalability than NetWare. NT and OS/2 were both far behind in scalability.

Also, respondents ranked Vines highest in terms of ease of use by end users, and it received the second-highest "very good" rating for reliability. That reliability translates into lower support costs, for which Vines received the most favorable rating.

However, the same market forces that are driving users to NT or NetWare are also driving users away from Vines. "It's very stable, and we have few downtime problems, but support from the company is where it's lacking," says Brenda Markham, a systems analyst at the Idaho Department of Fish and Game in Boise. The department is migrating to NT in the next two years. "We're [not staying with Banyan because of] the instability of the company," she said.

Survey responses indicate that related trouble areas for Vines users and potential buyers include lack of third-party support and a perception that the Westboro, Mass.-based Banyan lacks technology leadership.

But analysts recommend that users don't rule out Banyan completely. Banyan unbundled the StreetTalk directory from Vines, and StreetTalk integrates with NT, NetWare and packaged applications such as SAP AG's R/3. Therefore, companies can use the directory service for building cross-platform, enterprise applications, Ben-Yosef says. Although integrating the different pieces is extra work, a good directory service can help pull together large, multivendor networks, he says.

Network operating systems, *page 112*

The intranet factor

By the end of next year, the line between network operating systems and intranets will dissolve. People will use their company Web sites to share files and printers, search for people and resources, send E-mail and collaborate inside and outside the corporation, says David Passmore, president of Decisys, a network consultancy in Sterling, Va.

That means technology managers must build networks around Internet and intranet standards rather than proprietary network operating system products, Passmore says. There are two emerging standards for print-and-file services on intranets.

As is typically the case, Microsoft is driving one set of standards, and most other vendors are aligning behind the second. Microsoft is pushing its Common Internet File System (CIF), which is based on the print-and-file protocol from its old LAN Manager network operating system.

Microsoft plans to build CIFs into Windows 95 by the end of next year. Meanwhile, Sun Microsystems, Inc., Netscape and others are promoting Web NFS (Network File System), which is a "light" version of the Unix standard for naming, storing and accessing files. Web NFS is expected to appear in browsers such as Netscape's Navigator by the end of next year.

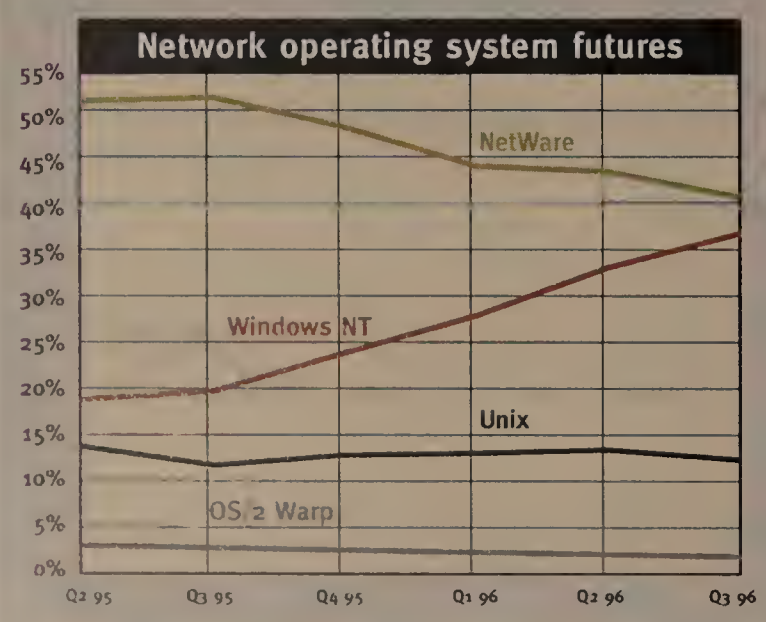
Once the protocols are released, Passmore said he expects them to spread quickly into user companies' networks. "The deployment cycle is pretty rapid these days," he says.

Novell is taking a different approach. The company recently introduced IntraNetWare, which combines NetWare 4.11, a Web server, Web authoring tools and a browser. Rather than moving to one of the new "standards," established NetWare shops can use IntraNetWare to meld their current networks with intranets and the Internet.

– ***Lynda Radosevich***

The future is NT

As of the third quarter of 1996, more than one-third of the companies that responded to the *Computerworld* Information Management Division survey said that looking out one year, they plan to use Microsoft as their primary network operating system vendor. To date, only 14% of the companies surveyed use Windows NT.



Surprise, surprise. A Microsoft product has generated significant user interest. Numerous companies are abandoning their current network operating system vendor or combining their current vendor's products with Microsoft's NT.

For some companies, making the move to NT seems only logical. One company based the decision to move to NT on "a feeling that [NT] is a stable platform that is going to be around for a long time," says Charles Sheffer, vice president of technology management at the credit-card division of Bank of America in Phoenix. The company will continue using Novell's NetWare, but any new additions will be NT.

NT's ease of use is the reason James Lincoln, software development supervisor at Omni Health Plan in Stockton, Calif., is moving the client/server portion of his firm's business to the operating system. "Overall, it's been easier to set up and an easier system to deal with," he says. "There's a little bit more efficiency, more power in the network operating system in NT."

Although the results indicate there will be an upsurge in NT users, not every company is replacing Novell with Microsoft as its network operating system vendor. Some loyal Novell customers aren't buying in to the NT hype. NT "is the latest flavor of the month, so everyone is figuring out why not to hop on the bandwagon," says Brian Auker, director of technology at the New Brunswick Public Schools in New Brunswick, N.J.

— Amy Malloy

Base: 8,561 companies with at least 100 employees. 3,088 companies responded to this particular question.

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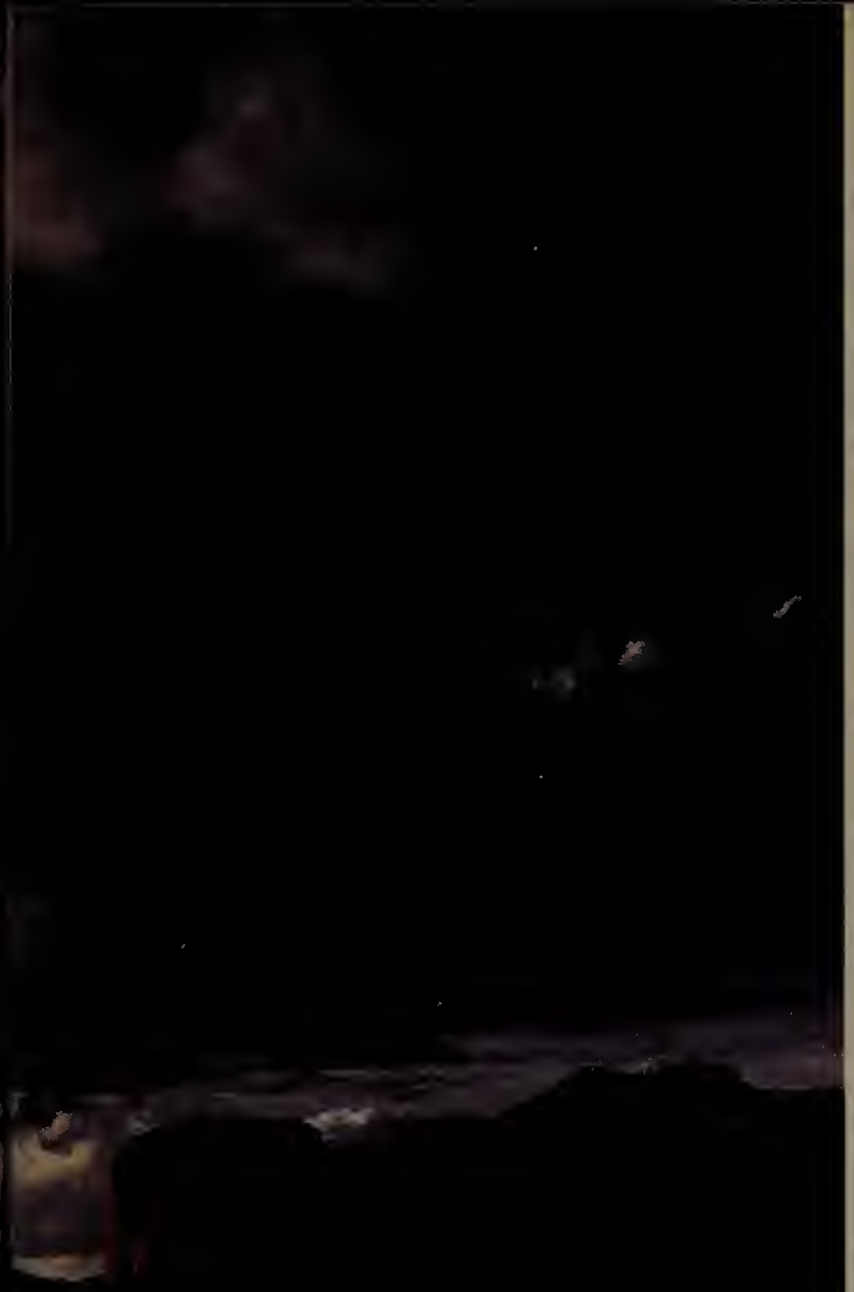

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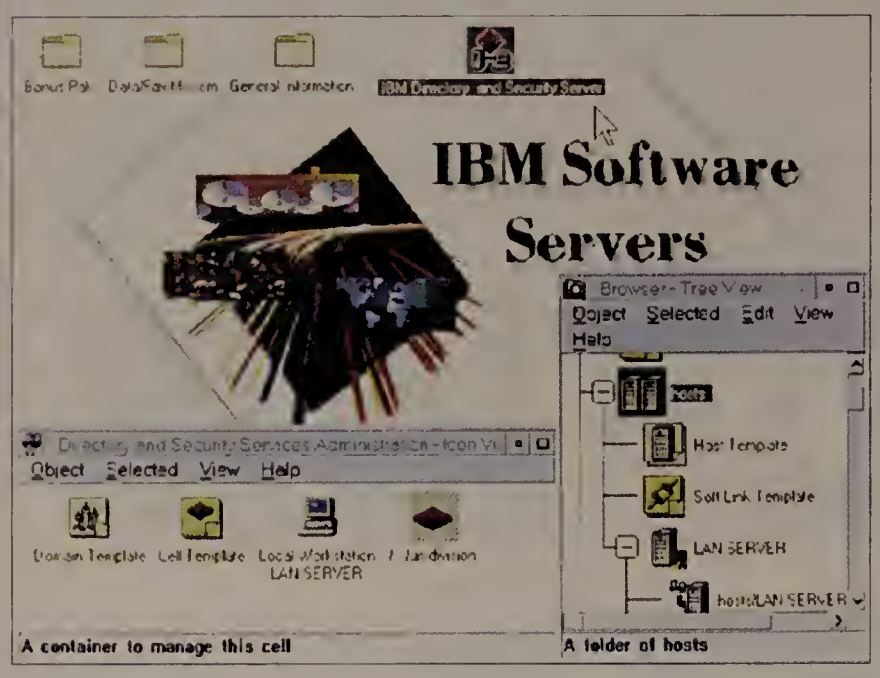

Still strong in IBM-centric shops, particularly those with OS/2 desktops, Warp Server scores a respectable 24% for 'very good' in overall satisfaction. Warp does well in performance and support issues, but 26% of its responding users say they wouldn't recommend Warp to their peers.

IBM's OS/2 Warp Server

Like Vines users, those running OS/2 Warp Server have good things to say about the network operating system. Their votes rank OS/2 highest for performance, and they overwhelmingly rank IBM highest for responsiveness and quality of technical support. "I absolutely recommend it," says David Lewis, manager of technical support at West Coast Life Insurance Co. in San Francisco. "I like things that are fast and easy to use."

But Warp Server faces the same market pressures as Vines. Unless companies are committed to OS/2 on the desktop, there isn't much reason for considering it today, he says.

Conclusion

Two other approaches have recently emerged. One is the best-of-breed concept, which is an alternative to the single-vendor network strategy. Many companies run NT servers and NetWare networks. Another option is to use NT for application servers and StreetTalk for an enterprise directory, Ben-Yosef says. This approach makes sense for companies that want to move to NT today but can't wait for Microsoft to deliver directory services. "The directory is the most important part of the network. It's the silent partner that you don't miss until it's not there," he says.

> "Forward-looking companies ... [are] asking where are they going to get all of their networking services."
>
> *— David Passmore, president, Decisys*

Another alternative appears in the form of intranets. "Some of the more forward-looking companies aren't thinking in terms of [network operating system] or print/file services, they're asking where are they going to get all of their networking services, including, Internet directory services, news servers for collaboration and Web services," Passmore says. Increasingly, the intranet is the answer. "For those people, the decision isn't Microsoft vs. Novell. It's Microsoft vs. Netscape," he says. (See story page 108 for more details.) ■

Radosevich is a freelance writer in New York.

Strengths and weaknesses

- **Enterprise information technology requirements dictate the best network operating system for your organization.**
- **OS/2 Warp Server has the technical edge, but your decision may be marketing-driven.**
- **NT Server is a good operating system but a weaker network operating system for the enterprise. It requires Microsoft's BackOffice and Enterprise Management Server to function well.**
- **NetWare still dominates the market and serves many well, but it is losing mind share to NT.**

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NetWare
Orem, Utah
(800) 453-1267
www.novell.com

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- Enterprisewide directory services
- Strong utilities from hundreds of companies

Weaknesses
- Lags as an application server

Grades (1 = Poor; 5 = Excellent)
Print-and-file services 5
Application and database services 3
Directory services 5
Reliability, availability and security 4
Performance 4
Remote services 3
Systems management 4

When to deploy:
- Where print-and-file services are important
- Where enterprisewide directory is needed

IBM's Personal Software Products Division
OS/2 Warp Server
Austin, Texas
www.austin.ibm.com/pspinfo
(800) 426-3333

Strengths
- Excellent print-and-file server
- Excellent application server
- Standards-based directory and security services
- Strong management utilities

Weaknesses
- Lacks platform support
- Lags on independent software vendor support

Grades (1 = Poor; 5 = Excellent)
Print-and-file services 5
Application and database services 4
Directory services 4
Reliability, availability and security 4
Performance 5
Remote services 5
Systems management 5

When to deploy:
- Where enterprisewide links are needed (especially when managing remote sites is important)
- 7 by 24 uptime critical
- Large IBM installations

Microsoft Corp.
Windows NT
Redmond, Wash.
(800) 426-9400
www.microsoft.com

Strengths
- Good multiple-platform support (Intel, MIPS, PowerPC and Alpha hardware)
- Excellent application server
- Strong research and development support

Weaknesses
- Lacks enterprise directory services
- Poor systems management support

Grades (1 = Poor; 5 = Excellent)
Print-and-file services 3
Application and database services 4
Directory services 2
Reliability, availability and security 3
Performance 4
Remote services 4
Systems management 3

When to deploy:
- Departments and small divisions — not enterprisewide

Digital Equipment Corp.
Pathworks
Maynard, Mass.
(800) 344-4825
www.dec.com

Strengths
- Excellent multiple-platform support (OpenVMS, Digital Unix, NetWare, NT, LAN Manager — VAX, Intel and Alpha)
- Excellent systems management support (ManageWorks, CapaCity and others)
- Good Internet and intranet support

Weaknesses
- Lacks enterprise directory services (Distributed Computing Environment directory expected soon)
- Too many pieces to track

Grades (1 = Poor; 5 = Excellent)
File-and-print services 4
Application and database services 4
Directory services 3
Reliability, availability and security 4
Performance 3
Remote services 4
Systems management 5

When to deploy:
- Large Digital installations
- Need to link LANs with different network operating systems
- Need to manage many servers and clients and other network resources

Banyan Systems, Inc.
Vines and ENS
Westboro, Mass.
(800) 222-6926
www.banyan.com

Strengths
- StreetTalk Directory: Hierarchical naming of people and resources for enterprisewide directory services
- Multiple platforms supported via ENS: NetWare, Unix, (AIX, SCO and Solaris) and NT versions that allow those LANs to be included in the directory

Weaknesses
- Limited hardware device support
- Poor technical support
- Not enough money for R&D

Grades (1 = Poor; 5 = Excellent)
Print-and-file services 4
Application and database services 3
Directory services 4
Reliability, availability and security 3
Performance 3
Remote services 3
Systems management 4

When to deploy:
- Only where now installed

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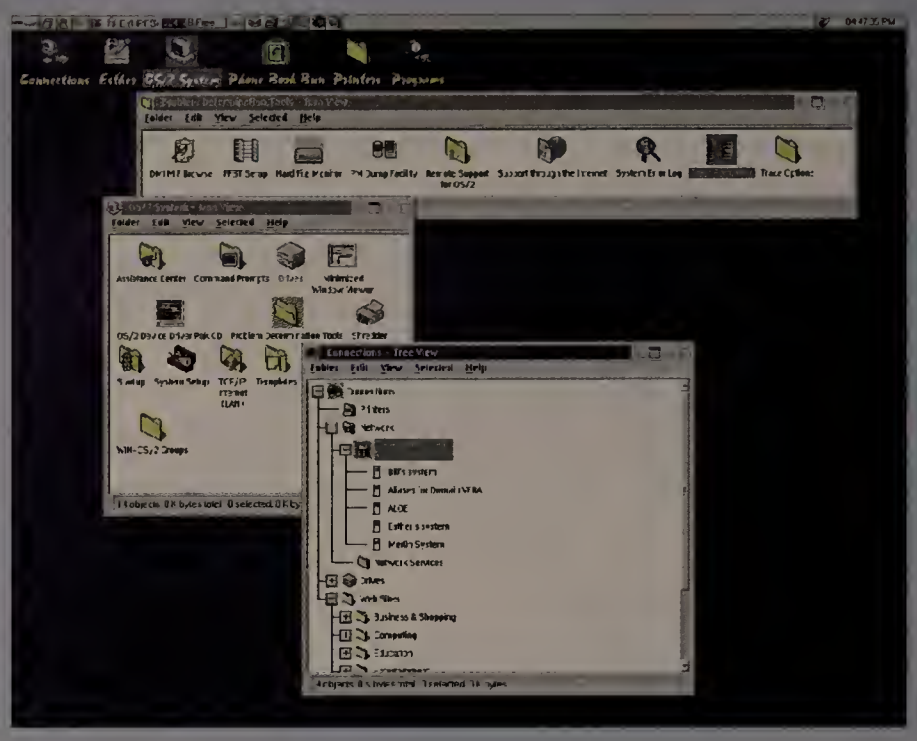
Review: OS/2 Warp addresses some old flaws on the desktop



OS/2 Warp 4
www.ibm.com

Final code does well overall, but bugs linger from the beta stage

Performance	A
Installation	B-
User interface	A
Features	A

The user interface in OS/2 Warp 4 has been updated with spiffier icons and folders and a Warp Center that doubles as a status bar.

By Esther Schindler

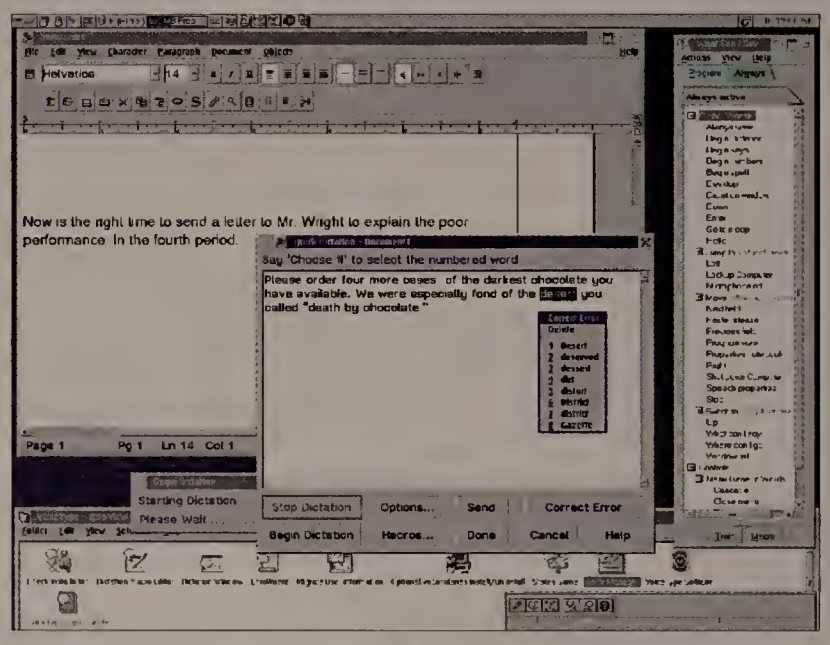
Without a doubt, IBM's OS/2 Warp 4 is an improvement over its predecessor. It includes significant user interface enhancements, better device driver support and new technologies such as Java. The latest version of OS/2 Warp, now generally available, maintains the operating system's reputation for robustness, connectivity, consistency and flexibility. However, the new version's benefits are marred by installation problems that continue to plague users.

The new Workplace Shell is perky and pretty. A multitray control bar called the Warp Center replaces the old Launch Pad, taking up less room and providing status information such as free disk space. TrueType font support is now included, and it works just fine. The longer I worked with OS/2 Warp, the more I appreciated the little things, such as improved multimedia viewers, the new default behavior of shadowing executables (rather than copying) and automatically creating a program object by right-clicking on an executable file.

Sexiest improvement

The sexiest user interface improvement is OS/2 Warp's inclusion of speech recognition, for both navigation ("Jump to OS/2 System Editor") and dictation ("There was a young girl from Nantucket...").

I used OS/2 Warp 4 predominantly on a 90-MHz Pentium processor with 32M bytes of RAM (although IBM recommends at least 100 MHz for speech) and was impressed with its accuracy, especially after I invested an hour completing a basic enrollment — familiarizing the system with my speech. (To be fair, I've used VoiceType Dictation quite a bit in the past.) While you won't want to use speech recognition in an all-cubicle environment, it's perfect for typing-challenged executives who need to create reports and send electronic mail. Speech recognition can also help in situations where hands-free use is important (such as a nurse's station).



The speech recognition in OS/2 Warp 4 works with ordinary applications. You can talk into the dictation window as long as you like, without interruption, then make any text corrections necessary before you say 'send' to paste it into the application.

IBM didn't emphasize performance improvements, but I found it marginally better in real-life use for equal tasks. The Workplace Shell is more responsive in OS/2 Warp 4, but some applications are slower to get started. There's nothing to complain about here, but performance improvements aren't a compelling reason for you to purchase this version.

OS/2 Warp shows IBM's emphasis on "network computing," including tools such as NetFinity, and puts particular focus on Internet connectivity. Clicking on a program object on the desktop downloads a beta copy of Netscape Communications Corp.'s Navigator for OS/2. Quite a bit of information is provided in Hypertext Markup Language, including a well-conceived and deftly executed device driver CD-ROM; if the driver isn't on the CD-ROM, the page provides a link to the hardware company's World Wide Web site so you can download the latest files. Java support is included in the base operating system, and it worked fine in all my tests. But IBM admits that it isn't perfect yet.

Several technologies are "in the box" with OS/2 Warp. OpenDoc is included as well as a few starter packs to help you get acquainted with component software. Even though I didn't test it, Open32 support (which IBM previously referred to as DAX and DAPIE) lets software developers create native OS/2 applications from their Windows code. OS/2 Warp 4 also gives users the choice of using standard REXX or Object-REXX.

The Bonus Pack applications have been updated, and an excellent application sampler CD-ROM is included. A copy of Lotus Development Corp.'s Notes Mail 4.1 is also included. Troubleshooting tools (such as AskPSP) and training tools are enhanced, such as a better tutorial and online Warp Guides. (I find the Warp Guides intrusive, but then I'm not a beginner.)

Problems lurk

All of these product strengths are wonderful, but OS/2 Warp 4 has some serious problems. The bugs I mentioned in my first look at the Merlin beta [CW, July 29] weren't adequately addressed. Font rendering is somewhat improved, but Windows fonts still look better. The "single input queue" fix hasn't yet prevented my system from locking up a few times. Even when multimedia is installed on another drive, OS/2 Warp expects to find the sound schemes on the boot partition.

Plus, despite notable improvements (such as the device driver CD-ROM), installation is still a painful experience that keeps OS/2 supporters from recommending it wholeheartedly to average users. Neither of my two production systems installed without manual tweaking.

My Microdyne Corp. Eagle NE2000 network card isn't supported out of the box, but the device driver CD-ROM claims it's in the basic install. While more devices are supported, several video drivers actually got worse in this version. Before my ATI Technologies, Inc. Mach 64 video card could work at higher resolutions, I had to boot from floppy and unpack a file. I've corresponded with dozens of OS/2 users, many of whom had perfect, trouble-free installations, although far too many people had to turn off the hardware sniffer or handhold their way through the installation.

Living with OS/2 Warp 4 for the past few weeks makes me feel like the parent of a teenager contemplating an uneven report card. The teenager might have an A+ in English, but the grade is still a B- in Algebra. That B- was a C- last semester, though, so how do you stress the need for further improvement without minimizing the student's achievements? OS/2 Warp earns an undoubtable A in subjects such as user interface and connectivity, but its troublesome spots made me mutter, "I just wish you'd apply yourself." ■

Schindler is senior contributing editor at *OS/2 Magazine*. She's author of *The Computer Speech Book* (AP Professional) and co-author of *Teach Yourself REXX in 21 Days*. You can reach her at esther@primenet.com.

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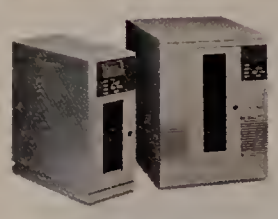

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In Depth

INTERNET INSECURITY

Despite fears of sabotage and anger at vendors, business marches toward the online future **BY LESLIE GOFF**

COULD AN ANGRY FORMER EMPLOYEE sabotage your World Wide Web page? Are your corporate secrets vulnerable to interception via the Internet? Is your Web server secure for online transactions?

Internet security violations generate a great deal of publicity, fear and speculation, but information systems managers and security experts alike have a laissez-faire attitude toward the Internet's inherent vulnerabilities. Internet security stinks, but that is having minimal impact on the stampede toward an online world.

Given the 'net's promise, it appears that businesses are willing to accept the risks. We recently interviewed IS managers and security experts about the dangers, and future, of doing business online.

CW: Which Internet security issues keep you up nights?

Steve Dieringer, *vice president of electronic solutions at Banc One Corp. in Columbus, Ohio:* Getting customers excited about a service subject to a 'net meltdown or denial-of-service attack. When something goes wrong on the 'net, the customer perceives it as the bank's problem. So our concerns are about customer service, about putting up industrial-strength, high-quality applications that maintain our brand identity. And pieces of that are out of our hands.

Jeff Scherb, *senior vice president and chief technology officer at Tribune Co. in Chicago:* We're more worried about people getting into our systems and disrupting our news-gathering and publishing process. We're extremely careful about access to those systems because that's where we view an attack as really able to hurt us.

Jeffrey Schiller, *network manager at MIT in Cambridge, Mass., and security area director for the Internet Engineering Task Force (IETF), an international volunteer user organization:* As a famous university, we can be a target, but we aren't running a business on the Web, so the effects we deal with are fundamentally different. . . . Our worst-case scenario would be someone breaking in to our authentication system. Then everyone would have to change their passwords. That would be very embarrassing. But to be honest, none of it keeps me up. You learn to take these things one day at a time.

Steve Kent, *chief scientist of information security at BBN Corp. in Cambridge, Mass.:* Some customers are concerned about denial-of-service attacks, like the Panix situation in New York. [Public Access Network Corp., or Panix, an Internet service

Internet insecurity, *page 124*

Tribune's Jeff Scherb is wary but willing to do business online: 'If we found a compelling application, we wouldn't let security stand in our way'

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"IS managers need to make it very plain . . . that security is important. Walking away from a purchase is the language that vendors understand."
— Jeffrey Schiller, network manager at MIT and security area director for the IETF

INTERNET INSECURITY

CONTINUED FROM PAGE 121

provider, has been barraged by high volumes of anonymous requests for connection. The requests have tied up its servers and prevented access.] They see it as a vulnerability in their ability to communicate with clients. If you're pushing hard for customers to visit your site, then it's a legitimate concern. So we're all looking into how we can mitigate, if not prevent, the effects of such an attack.

CW: Tribune Co. isn't transacting business on the Web. Were Internet security concerns part of that decision?

Scherb: Security has had little to do with it. If we found a compelling application, we wouldn't let security stand in our way. What is holding us back is a convenient way of paying for things. . . . If we found a business model, we would find a way around the security issues.

Kent: There are not any perfectly secure systems out there. If you say you're not going to do business on the Web until the 'net is perfectly secure, you will never do business on the Web. So you have to approach it in an enlightened way and ask, "What are the risks I face, and why am I doing this?"

CW: Banc One has launched a few business applications on the Web. What made you feel comfortable enough to go forward?

Dieringer: We started off with a business-to-business application because we thought we could use it to experiment, use proprietary security techniques and gain some experience. . . . The application [automates] college university and corporate research library publication renewal and ordering. It combines order and payment over the 'net. We saw it as a safe, non-mission-critical way to test transactions on the Web.

Win Treese, *director of security at Open Market, Inc., a developer of Internet transaction security software in Cambridge, Mass.:* The companies willing to go forward share two characteristics. One, they've made a strong business case for the corporation to proceed. And two, they have a good level of understanding about the risks. If you choose the right technical resources, it's safe to transact electronic commerce. But if you don't make the investment in learning about it, it's hard to sort out what's risky and what's not.

Schiller: [The IETF] recommends that any organization on the Web have some sort of in-house security expertise, especially if you're doing business on the 'net. There are solutions, like Web-site hosting and firewall services. But for strategic decisions, you really need in-house expertise.

CW: What effects do Internet security violations have on the IS department?

Schiller: When something bad happens, people look for someone to blame. But blame is reactionary. The right thing to do is to try to figure out how someone got in. Was it because of incompetence or a security hole you had no knowledge of? How can you prevent someone from getting in again?

Kent: IS has to advise senior management about the risks and benefits of business over the Web. Ultimately, it's a senior management decision, so the best IS can do is give them the right information — not exaggerating the dangers, but not underestimating them.

Sometimes security violations are not the result of poor management. The Panix attack capitalized on a latent vulnerability in all implementations of the TCP protocol that people have known about a long time. It's tough to deal with; the [Transmission Control Protocol] needs to be re-engineered at the kernel level.

CW: What are some other known vulnerabilities that haven't yet come into play, and how can IS anticipate them?

Schiller: The Web has a lot of potential vulnerabilities — there's plenty I know about that I don't want to talk about. People who know about the vulnerabilities are reluctant to talk about them because if we disclose what we know to the public, the bad guys will take advantage. And if we address them with the vendor community, they don't do anything about them.

Treese: This is an area of great concern. About the same time as the Panix attack started, there was a publication of [the TCP] source code in *FRAC* and *2600* [two hacker magazines]. What happens is someone writes a program to do something bad on the 'net. The software spreads, and it takes no sophistication to run it. So now it's not just a few bad guys who know how to crack a system. It's anyone who can download a file. And there are a number of cracker tool kits floating around.

Schiller: The criminal element is a percentage of society, and as we go into the cyberworld, that percentage is coming with us.

CW: Then why isn't Internet security any better than it is? Why aren't known vulnerabilities being addressed pre-emptively, and what can IS do to speed up development?

Schiller: It is very difficult to get hardware and software vendors to provide secure systems.

When I beat up vendors and tell them they're selling systems that are insecure, they say, "Customers aren't asking for more security." Well, that's because customers are expecting it to be there — they assume security is built in. So IS managers need to make it very plain to their vendors that security is important. Walking away from a purchase is the language that vendors understand. Buy the most secure product, even if it means you can't buy the flashiest product.

Philip DesAutels, *project manager of the digital signatures initiative at the World Wide Web Consortium, a vendor organization working toward standards for Internet security and electronic commerce:* We've formed an industry group to address digital signatures and are working toward establishing a set of standards for release early next year. Users will become involved in the implementation of the standards to make sure they meet their needs as new products develop.

Schiller: There's a lot of hooey out there. Vendors will tell you, "Buy a firewall, and your problem is solved." Well, never trust the advice of someone selling you a product, especially if the sales pitch is, "My product makes your problem go away."

CW: What has to happen before more companies will go forward with Web-based transactions?

DesAutels: From the point of view of the corporate boardroom, the main thing is, "Can people trust what they see on my Web site?" Until then, the Web will be a great place for moving data back and forth, but it won't hit the masses. There's a limit to how much commerce can go on in an anonymous fashion.

Digital signatures are the Web equivalent of mutual trust in business relationships. They're like getting certified mail.

Schiller: Well, digital signatures solve an important problem, but not the *whole* problem. If the computer that holds your digital signature keys is broken into and the keys are stolen, where are you then? It's like having a bank vault stored inside a papier-mache building.

Scherb: [Site verification] has been a problem for some companies, like Kmart. A disgruntled employee posted a [hoax] "Kmart Sucks" page. . . . But how big a problem is it? If you were never hit by vandals spray-painting your building, you wouldn't put sentries in front to prevent it from happening.

Kent: People understand that the Web is now another medium for transacting business. Nobody would think of doing business without the telephone. You can get obscene phone calls, but they don't make you feel your phone network is not secure enough to conduct business. The same analogy is appropriate for the Web. ■

Goff is a freelance writer in New York.

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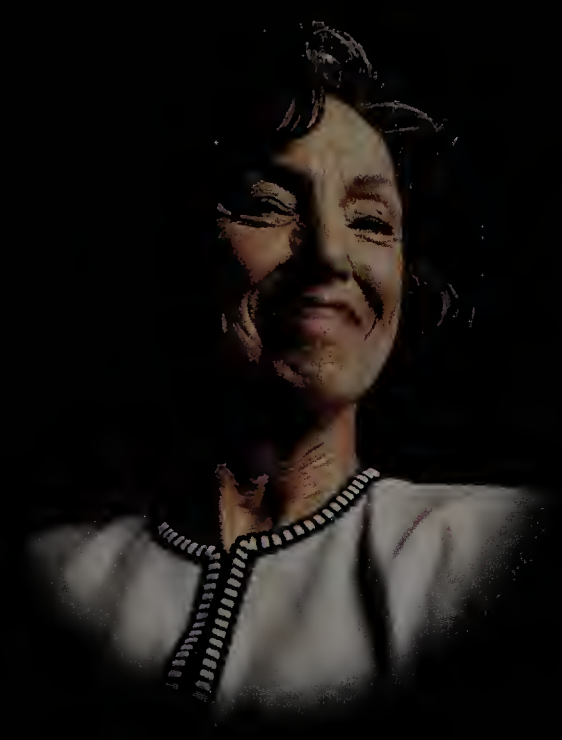

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Computer Careers

Top guns

By Melanie Menagh

STAN WOLENSKI

"You should know different operating environments, different servers, database languages, applications. You must be able to apply basic principles to any situation; then you come up with a learning curve very quickly."

Charlie Feld

Something strange in your intranet? Who you gonna call? If you're lucky, one of these guys. If there's a ghost in your machine, they'll bust it.

They're the trade's roughest riders, called in when major challenges confront information systems operations. They're at the forefront of a new breed of information technology leaders who have decided to leave the cozy, safe world of maintaining systems status quo and head out to wherever trouble is brewing.

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One is a renowned chief information officer gone solo. Another works for a big consulting firm. The third is a professor who does this kind of work in his spare time. What they all have in common is a restlessness, a curiosity, a drive to be where the action is.

In addition to formidable technical prowess, they all have the invaluable, innate abilities to learn fast, think on their feet, persuade the skeptical and get results.

Those who do this are hard to find because they often get lured into longer-term positions. Plus, the hours are long. The pace is frenetic. The networking moves would defy a Flying Wallenda. In short, it's a great job — but not for the faint of heart.

Top guns, *page 129*

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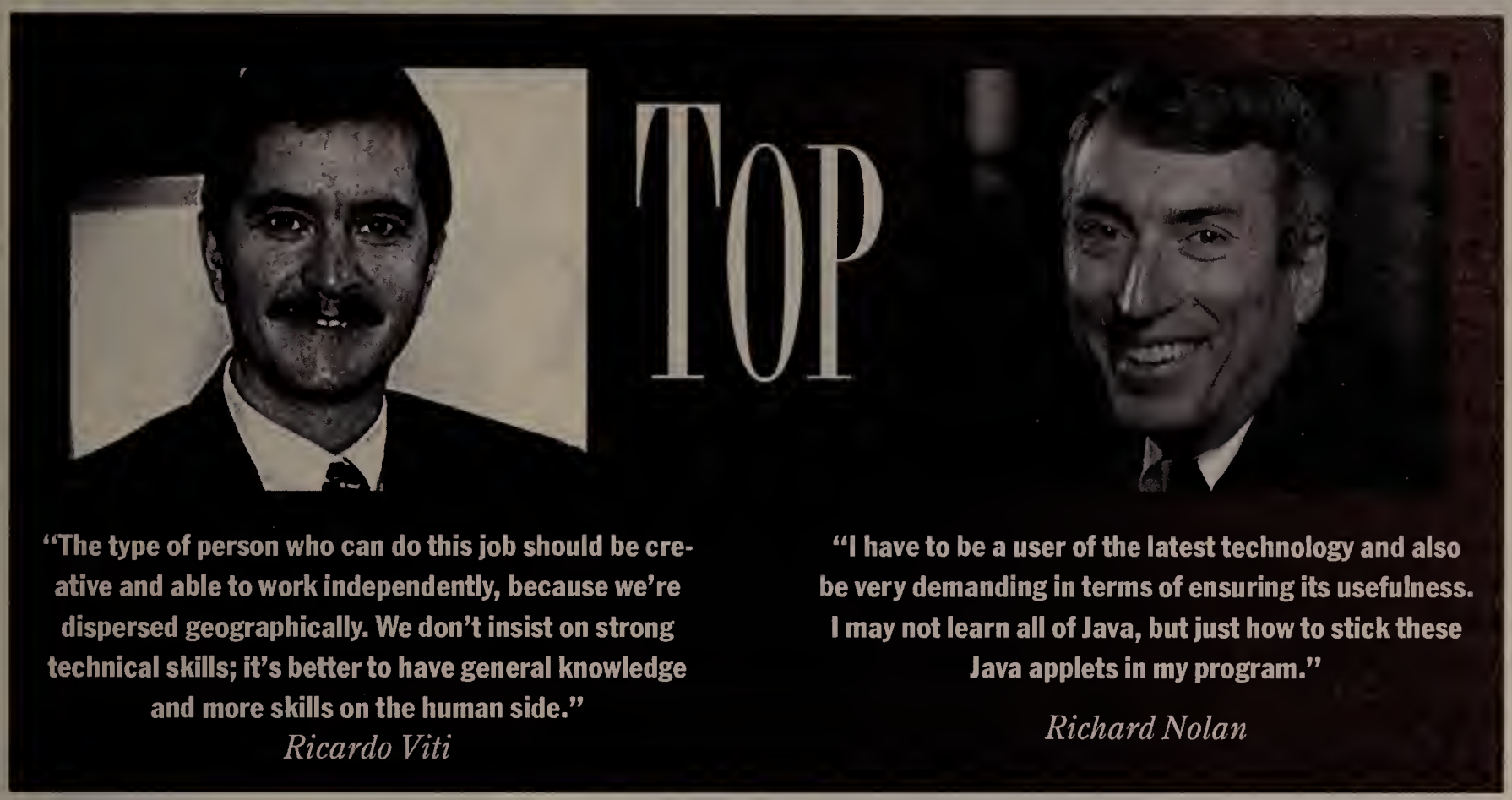

CONTINUED FROM PAGE 127

Where few dare tread

CHARLIE FELD'S IS work at Frito-Lay, Inc. became a paradigm for CIOs, much studied and widely imitated. Ultimately, however, he didn't get the same kick out of the caretaker role as he did from building systems. So Feld embarked on a new career as hired gun, going where the tough jobs were.

He designs a system, trains staff to run it, then moves on to the next company.

Lately, he's been acting CIO at Burlington Northern Santa Fe Railroad in Fort Worth, Texas, and head of a consulting business, The Feld Group. Feld says that in contract work, you've got to hit the ground running as you start every new job.

"You don't really have a honeymoon period. You have to use it more effectively, get going sooner, because you don't have a lot of runway," Feld says.

From then on, the pace never lets up. "There's no time out; you're always doing the hard stuff. When you get to the easy part — bring the organization to a safe, smooth playing field — it's time to move on."

To do this peripatetic work, Feld says, it's important to have a broad range of technical skills.

"You should know different operating environments, different servers, database languages, applications. You must be able to apply basic principles to any situation; then you come up with a learning curve very quickly," Feld says.

This kind of "migrant work," as Feld calls it, means that the "burden of career shifts from the company to the individual. A career will be built around a person's knowledge, skill, attitude toward work. You're as vulnerable as you are durable. In contract work, you need to approach it with the same loyalty and passion that a staff person would. When I go to sleep at night, I'm as committed to the company as anybody on the regular payroll."

Others' dirty work

RICARDO VITI runs Andersen Consulting's SWAT team. As associate planner in business process management at the Chicago consultancy, Viti is sent in to head off potential problems at the pass.

If red flags go up when Andersen redesigns a client's IS structure, Viti moves in. His mission: Shut down a crisis *before* it happens. It's punishing work because, by definition, the SWAT team attacks only the thorniest problems. Jobs last weeks or months.

Then Viti is back on the plane to fend off another crisis.

Fortunately, Viti is internationally equipped for the task. He entered the field in his native Argentina and was later based in Spain while overseeing projects all over Europe, including work for the London Stock Exchange. Finally, he realized, "The financial markets over there are actually ahead of the States in some areas, so I saw many opportunities in America to use the knowledge I gained in Europe."

Viti says the core of the SWAT team mission is "application assessment. We have to go into the applications, look for the quality of the programs and the amount of errors those applications are having. We are the ones who have to step in and stop problems before they happen."

As with any high-performance group, Viti says, the SWAT team is always actively looking for people.

"The type of person who can do this job should be creative and able to work independently, because we're dispersed geographically. We don't insist on strong technical skills; it's better to have general knowledge and more skills on the human side."

Viti says this work "is a good place to grow fast. I think people will go in and out on a rotational basis. They'll do it for a couple of years, then they'll be hired for a permanent position. It's not a place to finish your professional career, but it's a great place to speed up your career."

For the thrill of it

RICHARD NOLAN'S bosses at Harvard Business School in Boston allow him only 40 days per year to do outside jobs in addition to his position as a professor of business administration.

Top executives know his time is scarce, but his phone rings off the hook with calls from CEOs eager for him to triage their most intractable IS conundrums. They know Nolan from his career at The Boeing Co., the U.S. Department of Defense and Nolan, Norton & Co. and from his work developing the Stages theory of the evolution of IS.

"I recently worked with a big international auto company," he says. "There are dozens of computers in a car that have to be all networked together. There is software for machines that drop down over the engine to figure out what's wrong with it. I wanted to learn more about what was going on. It's a complicated business."

Companies often call out the Nolan cavalry when a competitor makes a move.

"It's sort of a slow boil with a crisis trigger," Nolan says. "Someone else is doing something that looks threatening." His job is to build trust with management and assess what needs to be done — which often involves redefining the company's original question or problem.

Nolan says it's essential to be ahead of the game. "I have to be a user of the latest technology and also be very demanding in terms of ensuring its usefulness. I may not learn all of Java, but just how to stick these Java applets in my program. You've got to have tenacity to continue to use the technology. You can't be a spectator — you have to be a player." ■

Menagh is a freelance writer in Maple Corner, Vt.

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For an audio interview with Richard Nolan, go to our Web site: www.computerworld.com.

Regional Scope: Central/Northern Florida

Sunstruck

Perfect climate, plentiful jobs tempt IS job hunters

By Lynn Haber

Florida has long been known for its broad beaches and sunny vacation spots. But the Sunshine State is also full of bright employment prospects for information systems job seekers, particularly in the central and northern regions.

Computer-related employment opportunities are growing fast in Florida. According to Peter Wolfe, managing director at Source Services Corp., a recruitment firm in Tampa, computer-related jobs are expected to increase by 61% between 1991 and 2005. A low unemployment rate often forces employers to look outside their immediate locale — and outside the state — to fill IS slots.

There are more than 100 IS job openings at Barnett Technologies, Inc., one of the largest check-image processors in the world and a fast-growing subsidiary of Barnett Banks, Inc. in Jacksonville. A broad array of positions is available, but high on the most-wanted list are systems integrators, LAN administrators, senior programming analysts and systems analysts.

"The local job market is very competitive. We do a lot more relocations than we'd like to," says Patrick Chassin, director of human resources at Barnett Technologies. Some of the more difficult skill sets to find include networking, client/server technologies such as Powersoft Corp.'s PowerBuilder and mainframe Cobol programmers.

Wide variety

While Florida boasts a diverse economy, popular industries in the central and northern areas include insurance, retail, manufacturing, financial services and real estate. Firms such as Lockheed Martin Corp. and Rockwell International Corp. are among the Orlando area's largest employers.

Real 3D, a commercial developer of real-time 3D graphics, is an autonomous division of Lockheed Martin. A recent spin-off of the aerospace company, Real 3D is in a growth mode. "Jobs typically stay open for two or three months, but we have some positions we've been trying to fill since this past February," says Karen Cole, manager of human resources at Real 3D.

Job openings include Windows 95 and Windows NT device driver-level software engineers and application programmers with experience in real-time virtual reality. On the hardware side, Real 3D is looking for application specific integrated circuit designers. "We have a few entry-level requirements, but the majority of positions require three to eight years of experience," Cole says.

Some of the hottest positions in central and northern Florida are for systems and programmer analysts with C, C++, Sybase, Windows NT, Windows 95 and Unix skills.

As in many regions of the country, client/server skills are in big demand. But so are mainframe skills. "We see firms looking for mainframe programmers with Cobol skills and with database skills such as Oracle, DB2 and CICS," says Stacey Berry, an office manager at Capital Career Solutions, a recruiter in Tallahassee.

Wende Hoff, an IS recruiter at Walt Disney World, says the company can use mainframe developers with Dun & Bradstreet Software financials experience. "The big growth at our company is in client/server, but it's difficult to find the mainframe talent when we need it," she says.

Wayne Bonn, a human resources representative in the IS division at Harris Corp., an electronics firm in Melbourne, says the company has 20 openings, not including those for new graduates. Entry-level positions for software and systems engineers and hardware designers pay about $35,000. Candidates with two to 10 years of experience can earn between $40,000 and $70,000, depending upon skills. ■

Haber is a freelance writer in Norwell, Mass.

Top players

Large employers in central and northern Florida include the following:

COMPANY	LOCATION	INDUSTRY	EMPLOYEES
Walt Disney World	Orlando	Tourism	38,000
Winn-Dixie Stores	Jacksonville	Grocery	12,700
Florida Hospital	Orlando	Health care	7,580
Baptist/St. Vincent Health Systems	Jacksonville	Health care	7,050
AT&T	Orlando	Communications	6,000
Lockheed Martin	Orlando	Defense	5,680
Orlando Regional Healthcare System	Orlando	Health care	5,500
AT&T American Transtech	Jacksonville	Telemarketing	5,300
Publix	Tampa	Grocery	5,018
St. Joseph's Hospital	Tampa	Health care	4,500

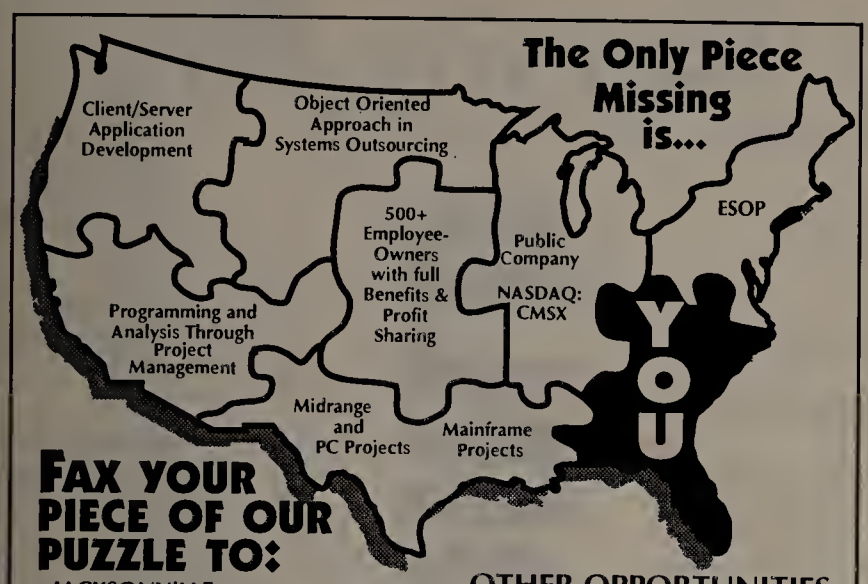
SOURCE: FLORIDA DEPARTMENT OF LABOR AND EMPLOYMENT SECURITY

Salaries in the Sunshine State

Average total IS compensation in Jacksonville, Tallahassee, Orlando and Tampa (salary plus incentives):

JOB TITLE	AVERAGE COMPENSATION
CIO/VP	$74,200
Network administrator	$43,400
Senior systems programmer	$40,800
Mainframe project manager, systems and programming	$35,900
Micros manager, end-user computing manager	$34,800
Client/server project manager, systems and programming	$33,700

SOURCE: *Computerworld*'s 1996 ANNUAL SALARY SURVEY



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Manager, Human Resources Information Systems: Position supports the human resources systems, software applications, and end-users. Require: 3-7 years of recent experience in client/server software system support, client/Server systems implementation and Peoplesoft Human Resources software. Bachelors in Computer Science or related field required. Human Resources functional knowledge, Oracle7 RDBMS background and recent HP-UX/HP9000 experience are a plus. Good analytical, communication, teamwork, and interpersonal skills required.

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This position directs the total CF computer system software support; directs the technical support of all data base design, implementation, and maintenance; directs all performance monitoring/tuning, and capacity planning and directs the LANs and microcomputer activities and strategies.

Requirements are a bachelor's degree and six years of experience in data processing, four years of which must have been in a supervisory capacity. Experience with IBM, ES9000/MVS-ESA/IMS/DB2 Unisys A19 CP/COMS/ DMSII mainframe configurations and LANs and microcomputers utilization are also necessary. Position number - 48619 Position location - Tallahassee

Submit state of Florida employment application to: Jo Moore, CF Technology Centre, 1940 North Monroe Street, Tallahassee, FL 32399-0710, (904) 487-8169, Fax (904) 487-6799, DEADLINE: November 13, 1996 EEO/AA Employer/Veterans Preference

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TO APPLY: Completed state application form must be received by 5:00 PM on November 13, 1996. Send to VEC, Human Resource Management Services, P.O. Box 1358, Room 101, Richmond, VA 23218 or FAX to 804-371-2814. TDD 804-371-8050. EO employer-program. Auxiliary aids/ svcs are available upon request to individuals w/disabilities.

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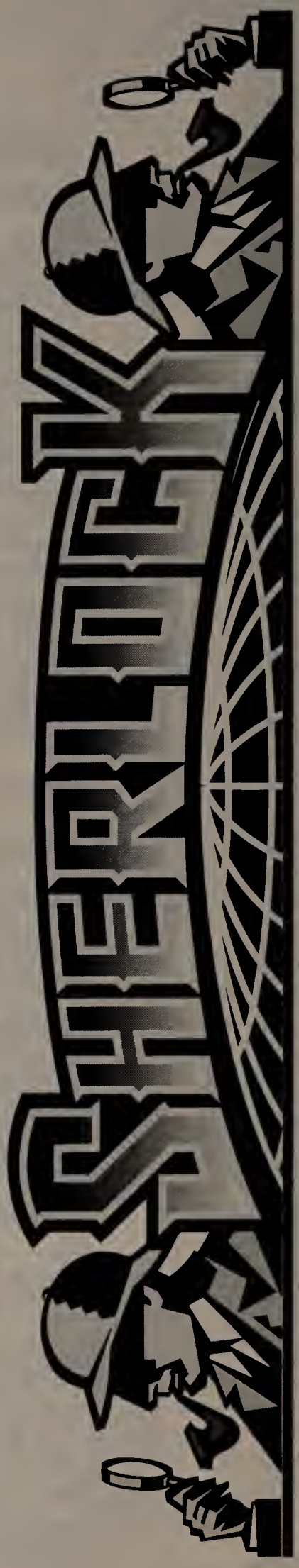

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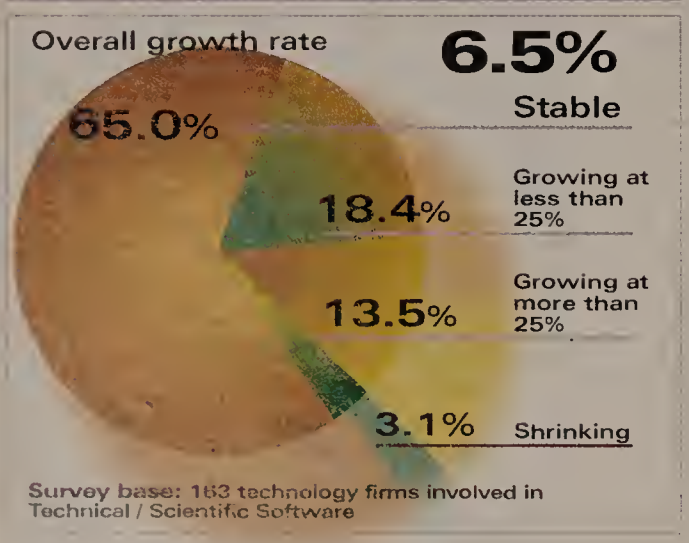

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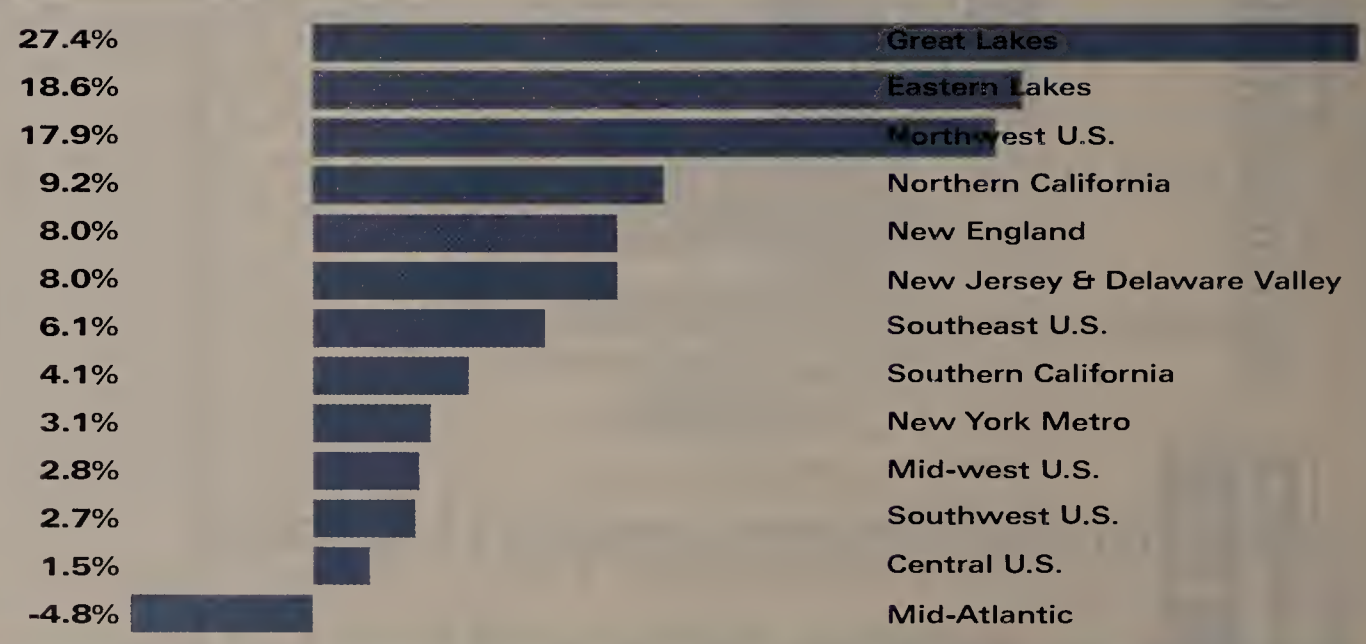

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Marketplace

How to CHOOSE a firewall

By Amy Malloy

As companies stampede to get on the Internet, security is becoming increasingly important. A firewall has become a necessity, says Jon McCown, network security analyst at the National Computer Security Association (NCSA) in Carlisle, Pa.

A firewall provides a protective layer between the Internet and a corporate network through a combination of hardware and software.

Computerworld asked McCown how a company should go about choosing a firewall for their organization.

What standard features should a firewall provide?
NCSA's certification requires that a firewall be able to support common services such as [Hypertext Transport Protocol], Telnet, [File Transfer Protocol] and mail access to the Internet while resisting current — as of the certification date — common attacks. We recommend that organizations clearly define their technical requirements and security policy as a means of determining features "above and beyond" the NCSA requirements.

What benefit does an integrator bring?
The product-specific training that integrators bring to the table can raise support staff confidence and comfort levels. Most integrators, as well as other installers, offer post-installation testing of a firewall. We highly recommend it.

What are some pitfalls that buyers should be aware of?
Determining requirements before deciding on a product can save a great deal of frustration, if not actual dollars, when bringing a firewall configuration online. Another trap is excessive confidence in an untested configuration. A terrific firewall misconfigured is a double-edged menace in that you have both false confidence and a gaping hole in your security. A significant number of security incidents are the direct result of misconfiguration.

How much does a company's line of business affect the type of firewall it chooses?
Enterprises with typical service profiles such as those of the NCSA certification have a wide variety of products to choose from, at a wide variety of price points. As service and support requirements become more specialized, the field narrows. Adding requirements such as specialized proxies, multilevel security, content filtering, fault tolerance, etc. may drive the decision to one product. Knowing requirements far in advance is the key.

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NCSA certification can help you choose wisely

When did the NCSA start its certification process, and how does this ultimately benefit buyers of firewall products?
The firewall consortium started in June 1995. Anyone in the firewall industry with a product can join, but vendors must pay $12,500 a year for membership, and only members are eligible for NCSA certification testing.

What a firewall has to do is supply a fixed set of business services. We put the same policy on all products to make sure that it works. We apply an evolving set of common attacks. We look at products four times a year. You know that a product with a seal is being continually tested, so you know it will not fold up and die due to a common attack.

The thing we really push on as far as firewall security goes is that the vendor have a clearly defined policy regarding what services it will support — the corporate policy side and how that policy is implemented in the firewall product.

Having that validated and nailed down in the product makes sure that it is right.

There is also a decertification process. If a product no longer meets the certification specs, we go through a remedial exercise with a vendor to see if they can come up with patches to fix it. If the problems cannot be resolved, they will be decertified publicly. They are being careful, too. Look for that seal. If that product starts slipping, the sticker won't stay, and you will hear about it publicly.

We are working on Version 2 of the certification, which will be available at year's end. This version will include secure [World Wide] Web access and remote administration security.

Can a company test firewall products?
Yes. We have worked with a number of companies that have done just that. Establishing a test bed to prove that various products can meet a set of requirements is very helpful prior to actual purchase. If time is available, this exercise can be a great confidence-builder for people in both the [information systems] group and in the boardroom. Testing any configuration in a controlled environment prior to bolting on the enterprise network is only common sense.

What should a company expect to pay for a firewall?
If you truly build your own, you could start out as low as the cost to put hardware together, but that is kid care. The high end is another story. It may go over $100,000. One thing that can break out price is throughput. If you are running thousands of users as opposed to dozens of users, the low-end product may not meet the needs of that many users. ■

Jon McCown manages the Network Security section at NCSA Labs and meddles with Windows NT. His Internet address is jmccown@ncsa.com.

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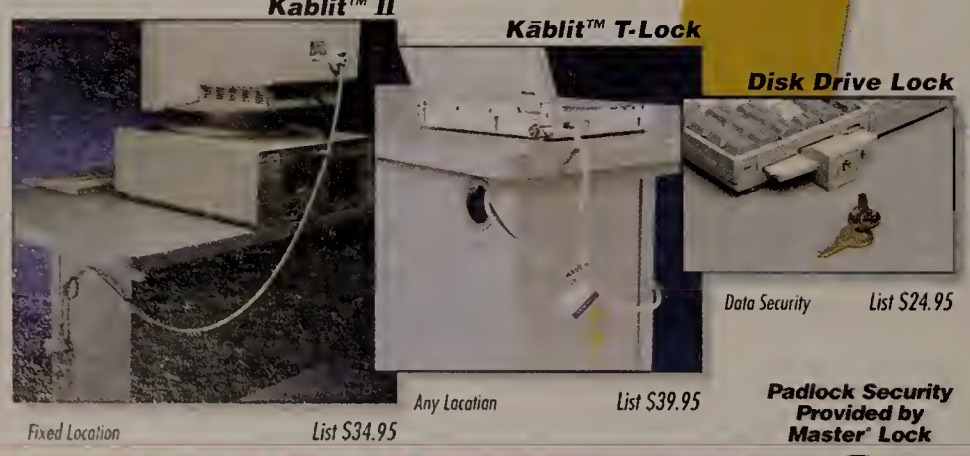

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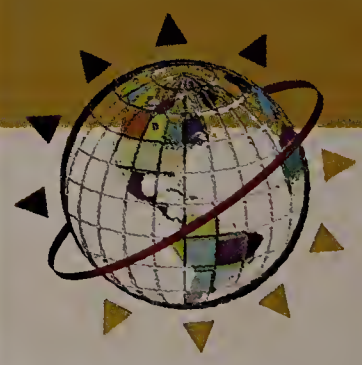

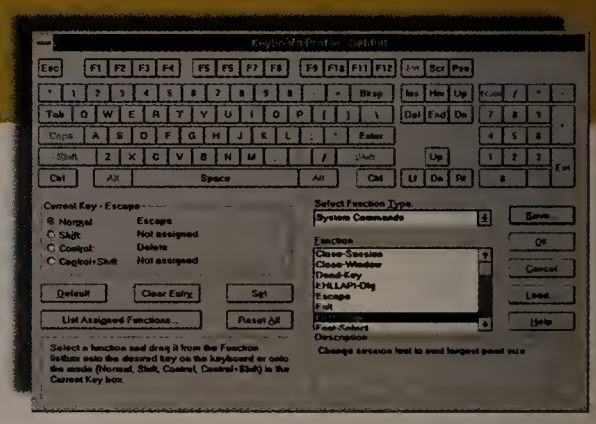

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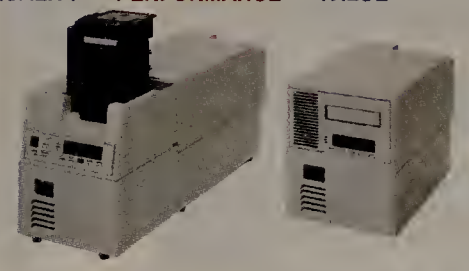

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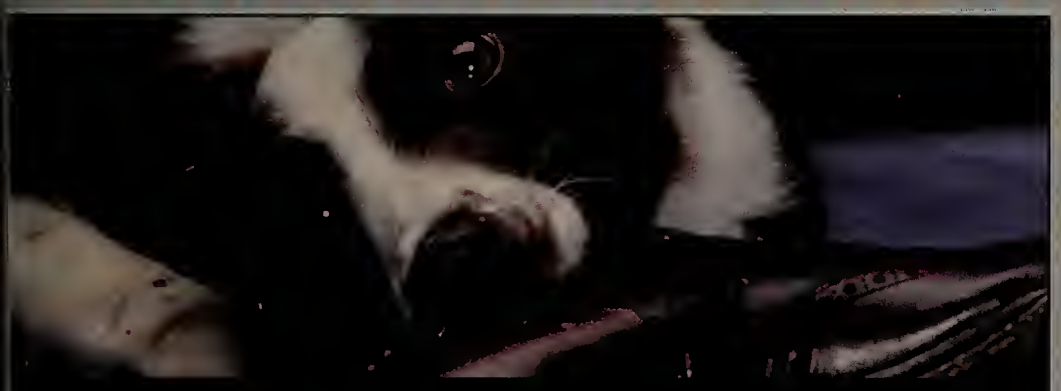

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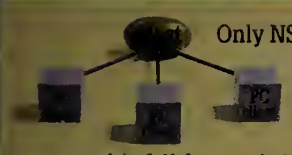

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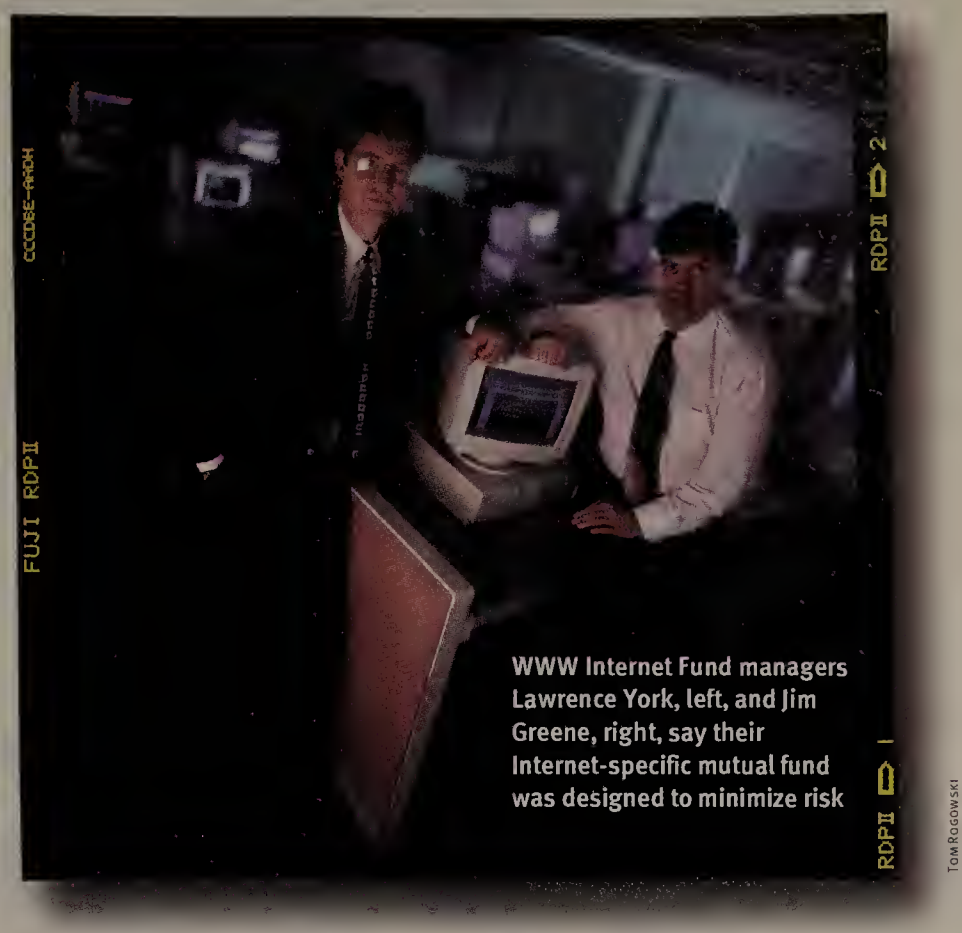
Finance & Investing

Next week: How to examine a company's financial health

Internet funds off to quiet start

Despite good performance, funds may have limited appeal

By Tim Ouellette



WWW Internet Fund managers Lawrence York, left, and Jim Greene, right, say their Internet-specific mutual fund was designed to minimize risk

TOM ROGOWSKI

Not all things with an "Internet" label make investors go crazy.

Investors may have swarmed over Internet stocks earlier this year, but they have yet to pounce on a new investment vehicle — Internet-specific mutual funds.

Two such funds have been launched recently. One, WWW Internet Fund, comes from WWW Advisors, Inc., a start-up firm in Lexington, Ky. The other is from an established financial house, Munder Capital Management in Birmingham, Mich. Both funds invest in Internet companies, such as Netscape Communications Corp., and mainstream computer companies, such as Hewlett-Packard Co., that do business in the Internet arena.

The funds have performed well, and one, WWW Internet Fund, has managed to pull in about 400 customers. But they haven't caused a market frenzy like other Internet investment opportunities.

Under some circumstances, that could be a decent amount [of customers], but I suspect [the Internet funds] have not attracted a lot of money," according to Russ Kinnel, technology funds analyst at Morningstar, Inc. in Chicago.

Industry experts say the funds may be suffering some from the current cooling toward Internet stocks and from minimal marketing efforts. But most important, investment experts say Internet-specific funds may be too narrow in scope for the average investor.

Two major investor organizations report that members have expressed little interest in these Internet funds so far. Officials at the National Association of Investors Corp. in Madison Heights, Mich., and the Association of Individual Investors Association in Chicago say members are focused on the larger, more well-known funds available from major investment houses.

Still, despite the many concerns, experts say investors should take a look at the funds because they could be a good investment vehicle for some. In addition to their solid performance so far, the funds give individuals a piece of the Internet action. Plus, their creators say they were set up to minimize risk for investors.

WWW Advisors has seen the net asset value for shares of its WWW Internet Fund rise since trading began Aug. 1. The fund includes such firms as HP and Yahoo, Inc.

The company is running a well-organized World Wide Web site (www.internetfund.com) that describes the fund.

We have actually been outperforming some of the major indices like the S&P 500, based on percentage increase, said Jim Greene, co-manager of the fund.

The Internet fund concept could gain credibility with the presence of Munder's NetNet Fund because the financial house has a solid reputation for managing mutual funds. The NetNet Fund (www.netnet.munder.com) began trading Aug. 19.

The NetNet Fund is a departure from Munder's traditional technology funds, but it is nonetheless a good investment option for some investors, according to the firm.

"It is quite different than anything we've done before," acknowledges Paul Cook, manager of the NetNet Fund's portfolio. Cook says the NetNet Fund was put together with criteria different from that used for setting up traditional funds. Munder looked for companies that it thought were best positioning themselves as Internet - market leaders. Some of its selections include Adobe Systems, Inc., Cisco Systems, Inc. and Netscape.

"When choosing stocks, we can't look for a turn in revenue because most of the earnings [among Internet companies] are negative right now," Cook says. "Instead, we look for growth, partnerships and management."

But the WWW Internet Fund was set up to minimize the risk of a volatile market, said Lawrence York, a co-manager of the fund.

The fund combines investments in early start-up firms as well as established, reliable companies. This helps investors profit from the success of the Internet as a whole rather than chase down specific stocks.

"Individual investors might make a bet on who will win the browser war, but they often can't invest in all the players themselves," Cook adds. "The fund spreads the wealth."

And trading on individual Internet stocks can be stressful, indeed. For example, Yahoo lost $1.4 million last quarter. But sales are still up, advertising has increased and prices have steadied at around $21 per share after running high in the $40 range.

Also, to make it easier for investors who are Web surfers, both funds can be traded over the Internet.

Bull's-eye on Internet funds

While Internet-specific mutual funds made small but significant improvements since trading began in August . . .

Fund	Price per share		Performance
	Aug. 1	Oct. 29	
WWW Internet Fund	$10	$10.52	10.52%
NetNet Fund	$10 (Aug. 19)	$12.86	12.86%

. . . they held their own when compared with these major indexes

Fund	Valuation		Performance
	Aug. 1	Oct. 29	
S&P 500 Index	650.02	701.50	7.9%
NASDAQ Index	1,098.85	1,203.05	9.5%

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The Week in Stocks

Gainers

PERCENT

System Software Assoc.	31.0
MCI Commmunications Corp.	19.2
VMark Software Inc.	18.3
Compuserve Corp.	17.0
Retix	17.0
Boole and Babbage (H)	15.4
Netcom On-Line (L)	15.1
Computer Horizons	12.1

DOLLAR

Security Dynamics Tech.	7.88
3 COM Corp.	5.13
MCI Commmunications Corp.	4.88
Shiva Corp.	4.50
Boole and Babbage (H)	4.00
Ascend Communications	3.88
Computer Horizons	3.38
Cabletron Systems	3.00

Losers

PERCENT

Proteon Inc.	-28.3
CompUSA Inc.	-19.6
Business Objects	-19.3
Egghead Discount Software	-15.6
Radius Inc.	-14.8
Softkey International Inc.	-14.7
Quarterdeck Corp. (L)	-14.6
Forte Software	-13.2

DOLLAR

CompUSA Inc.	-11.13
US Robotics	-9.00
Forte Software	-5.63
Gateway 2000 Inc.	-4.88
Inacom Corp.	-4.50
Softkey International Inc.	-3.50
Business Objects	-3.38
Electronic Data Systems Corp.	-3.13

Industry Almanac

Excellent time for XcelleNet

Two industry trends appear to have come together at just the right time for **XcelleNet, Inc. (Nasdaq:XNET)**. The first trend concerns the maturation of technology sectors. As sectors develop, they grow first in hardware, then in applications and finally in utilities. The second trend is the combination of applications and utilities in single-package suites.

XcelleNet is at the confluence of these trends that currently shape the mobile computing/remote access sector. The hardware and applications developments have been handled by companies, including Shiva Corp., U.S. Robotics, Inc., Security Dynamics, Inc. and Microsoft Corp.

XcelleNet's centerpiece product suite, RemoteWare, lets administrators remotely manage client PCs. It has a dial-up connection management component that automates data transfer during remote connections and reduces connection times. Companies use RemoteWare to connect mobile sales teams and far-flung offices.

XcelleNet early last month unveiled RemoteWare 3.1, a version for Windows NT. It is the first release of the product that isn't OS/2-server-based. Market analysts say this will serve XcelleNet well in the long term.

"XcelleNet will be an excellent one- to two-year investment," says Brian Connell, a market analyst at Marquis Research in Atlanta. "They now have a fully integrated product suite." Connell says the Windows NT version will finally "unshackle" XcelleNet's sales force. — *Stewart Deck*

An XcelleNet adventure

XcelleNet's stock price has risen recently, following a new product release and a solid earnings report

Exch	52-Week Range			Nov. 1 2 PM	Wk Net Change	Wk Pct Change
Communications and Network Services					**OFF 1.09%**	
COMS	68.50	33.50	3 COM Corp.	67.63	5.13	8.2
AIT	66.88	49.63	AMERITECH Corp.	54.88	-1.13	-2.0
T	68.88	35.00	AT & T (L)	35.00	-1.13	-3.1
ASND	71.25	26.63	Ascend Communications	65.50	3.88	6.3
BNYN	13.63	4.25	Banyan Systems Inc.	4.25	-0.63	-12.8
BAY	50.00	18.63	Bay Networks Inc.	20.63	0.75	3.8
BEL	80.38	43.50	Bell Atlantic Corp.	60.50	0.50	0.8
BLS	45.88	35.25	Bellsouth Corp.	40.50	1.63	4.2
BRKT	42.25	8.38	Brooktrout Technology	33.25	-1.75	-5.0
CS	87.75	53.00	Cabletron Systems	63.00	3.00	5.0
CSCC	91.25	20.00	Cascade Communications	71.88	-1.38	-1.9
CGRM	24.13	12.25	Centigram Communications	13.38	0.25	1.9
CSCO	67.00	32.00	Cisco Systems Inc.	60.88	0.88	1.5
CLIX	9.25	4.13	Compression Labs Inc. (L)	4.13	-0.38	-8.3
CMNT	10.50	4.00	Computer Network Tech.	5.38	-0.06	-1.1
XCOM	14.25	4.75	CrossComm	5.13	-0.25	-4.7
DIGI	43.25	13.63	DSC Communications (L)	13.63	-0.38	-2.7
FORE	44.75	20.25	FORE Systems Inc.	39.88	0.13	0.3
GDC	21.88	9.13	General Datacomm Inds.	9.88	-0.38	-3.7
GSX	44.25	30.50	General Signal Networks	40.88	-1.50	-3.5
GTE	49.25	37.75	GTE Corp.	41.75	0.00	0.0
LU	51.00	29.75	Lucent Tech. (H)	47.00	-1.88	-3.8
MADGF	48.63	8.88	Madge Networks NV	9.63	0.63	6.9
MCIC	31.13	22.38	MCI Commmunications Corp.	30.25	4.88	19.2
MNPI	34.50	5.50	Microcom Inc.	8.50	-0.38	-4.2
NETM	34.00	6.13	NetManage Inc.	6.13	-0.56	-8.4
NTRX	10.88	3.75	Netrix Corp.	6.50	-0.69	-9.6
NCDI	10.25	2.88	Network Computing Devices	7.25	0.38	5.5
NWK	36.00	11.13	Network Equipment Tech.	13.38	-0.50	-3.6
NETG	27.63	15.00	Network General	24.06	-0.31	-1.3
NN	37.25	14.00	Newbridge Networks Corp.	31.88	2.63	9.0
NT	66.00	34.00	Northern Telecom Ltd. (H)	63.63	1.88	3.0
NOVL	19.13	9.50	Novell Inc.	9.50	-0.50	-5.0
NYN	59.25	42.00	Nynex Corp.	45.00	0.88	2.0
OCTL	31.75	12.63	Octel Communications Corp.	16.25	0.00	0.0
ODSI	34.75	13.00	Optical Data Systems Inc.	14.44	-1.19	-7.6
PAC	35.25	25.88	Pacific Telesis	34.13	-0.75	-2.2
PCTL	44.72	26.75	Picturetel Corp.	26.88	-2.63	-8.9
PTCN	8.88	2.06	Proteon Inc.	2.06	-0.81	-28.3
RACO	7.00	3.50	Racotek Inc.	4.94	-0.06	-1.3
RETX	10.88	1.81	Retix	6.88	1.00	17.0
SBC	60.25	46.00	SBC Communications	48.88	-0.88	-1.8
SFA	20.38	11.38	Scientific Atlanta Inc.	14.13	-0.50	-3.4
SHVA	87.25	25.13	Shiva Corp.	42.75	4.50	11.8
FON	45.50	29.25	Sprint Corp.	40.75	2.38	6.2
SMSC	23.50	10.25	Standard Microsystems Corp.	11.25	-1.25	-10.0
USRX	105.50	32.75	US Robotics	61.13	-9.00	-12.8
USW	48.38	27.25	U S West Inc.	30.38	0.25	0.8
XIRC	21.75	8.88	Xircom	20.00	-0.75	-3.6
XYLN	76.00	34.00	Xylan Corp.	41.50	-1.50	-3.5
PCs and Workstations					**OFF 3.02%**	
AALR	10.38	5.88	Advanced Logic Research	9.88	0.38	3.9
AAPL	42.50	16.00	Apple Computer Inc.	23.88	-0.88	-3.5
ASTA	10.25	4.00	AST Research Inc.	4.50	0.00	0.0
CPQ	75.38	35.88	Compaq Computer Corp.	68.00	-3.00	-4.2
DELL	88.75	23.00	Dell Computer Corp.	80.63	-2.38	-2.9
GATE	57.63	18.00	Gateway 2000 Inc.	46.38	-4.88	-9.5
HWP	57.75	36.88	Hewlett Packard Co.	43.75	-1.88	-4.1
MUEI	23.50	8.75	Micron International Inc.	15.88	-2.38	-13.0
NIPNY	68.75	49.88	NEC America	55.38	1.38	2.5
SGI	38.75	18.25	Silicon Graphics (L)	18.25	-1.25	-6.4
SUNW	70.25	35.63	Sun Microsystems Inc.	61.75	2.38	4.0
Large Systems					**OFF 1.51%**	
AMH	13.50	6.75	Amdahl Corp.	10.13	0.19	1.9
DGN	19.13	9.00	Data General Corp.	15.00	0.75	5.3
DEC	76.50	28.38	Digital Equipment Corp.	29.38	-0.38	-1.3
IBM	135.38	83.13	IBM	128.38	0.63	0.5
MDCD	20.25	6.50	Meridian Data Inc.	7.50	-0.25	-3.2
NETF	6.50	2.38	NetFrame	3.13	-0.44	-12.3
SQNT	19.13	10.13	Sequent Computer Sys.	14.63	-0.25	-1.7
SEQS	7.38	1.88	Sequoia Systems Inc.	2.50	0.00	0.0
SRA	36.13	16.63	Stratus Computer Inc.	22.25	-1.38	-5.8
TDM	15.25	8.38	Tandem Computers Inc.	12.50	0.00	0.0
UIS	9.13	5.38	Unisys Corp.	6.38	0.00	0.0
Software					**OFF 0.09%**	
ADBE	74.25	28.50	Adobe Systems Inc.	34.38	0.25	0.7
AMSWA	8.75	3.63	American Software Inc.	5.25	-0.50	-8.7
APLX	42.50	12.13	Applix Inc.	25.25	-1.00	-3.8
ARSW	82.75	28.75	Arbor Software	36.25	-0.63	-1.7
ADSK	44.25	18.50	Autodesk Inc.	23.00	0.25	1.1
BGSS	50.00	29.75	BGS Systems Inc.	43.00	-0.25	-0.6
BMCS	88.00	33.25	BMC Software Inc. (H)	82.13	-0.88	-1.1
BOOL	30.00	19.75	Boole and Babbage (H)	30.00	4.00	15.4
BORL	21.25	4.88	Borland Int'l Inc.	5.00	-0.38	-7.0
BOBJY	55.50	11.75	Business Objects	14.13	-3.38	-19.3
CAYN	11.88	4.00	Cayenne Software Inc.	5.31	-0.06	-1.2
CNTR	8.13	2.88	Centura Software	3.75	-0.25	-6.3
CYE	30.63	14.13	Cheyenne Software Inc.	30.38	0.13	0.4
COGNF	34.13	10.50	Cognos Inc.	32.75	0.63	1.9
CA	66.75	33.88	Computer Associates	58.50	-0.38	-0.6
CVN	15.50	5.75	Computervision Corp.	8.75	-0.25	-2.8
CPWR	55.75	15.50	Compuware Corp. (H)	52.25	-2.50	-4.6
CSRE	32.00	10.75	Comshare Inc.	13.88	-0.50	-3.5
COSFF	19.13	8.00	Corel Corp.	8.00	-0.25	-3.0
DWTI	13.00	3.25	Dataware Technologies Inc.	4.00	0.00	0.0
FILE	67.00	20.00	Filenet Corp.	28.25	-0.69	-2.4
FRTE	81.75	24.75	Forte Software	36.88	-5.63	-13.2
FTPS	40.63	5.25	FTP Software Inc. (L)	6.13	0.50	8.9
HUMCF	60.50	23.00	Hummingbird Comm. Ltd.	28.50	-1.13	-3.8
HYSW	25.25	9.75	Hyperion Software Corp.	21.13	2.00	10.5
IRIC	16.25	10.00	Information Resources	12.75	1.31	11.5
IFMX	36.75	16.88	Informix Corp.	22.50	-0.44	-1.9
INGR	20.13	8.63	Intergraph Corp.	9.38	0.13	1.4
LEAF	12.63	2.00	Interleaf Inc.	2.50	0.00	0.0
ISLI	17.25	7.50	Intersolv Inc.	7.88	-0.88	-10.0
INTU	89.25	25.88	Intuit Inc.	26.50	-1.75	-6.2
LGWX	22.25	5.38	Logic Works	5.69	-0.31	-5.2
MAPS	22.75	7.50	MapInfo Corp.	10.88	-1.38	-11.2
MATH	9.25	3.25	MathSoft	4.00	-0.50	-11.1
MCAF	52.88	14.00	McAfee Associates	46.63	-0.44	-0.9
MENT	22.25	8.38	Mentor Graphics	8.38	-0.63	-6.9
MIFGY	21.25	8.25	Micro Focus	14.75	-0.13	-0.8
MGXI	18.63	5.63	Micrografx Inc.	5.75	-0.38	-6.1
MSFT	139.13	79.88	Microsoft Corp.	137.75	0.63	0.5
ORCL	46.38	26.38	Oracle Corp.	43.88	1.13	2.6
PMTC	54.50	25.88	Parametric Technology	48.63	-1.25	-2.5
PARQ	14.63	2.25	ParcPlace Systems Inc.	2.63	0.13	5.0
PSFT	94.00	34.25	Peoplesoft (H)	92.81	2.31	2.6
PTEC	20.38	10.63	Phoenix Technologies	16.75	-0.50	-2.9
PSQL	13.50	3.13	Platinum Software	12.00	0.00	0.0
PLAT	18.75	9.25	Platinum Technology	14.75	0.63	4.4
PRGS	38.00	12.13	Progress Software Corp.	15.50	0.00	0.0
RNBO	25.50	14.63	Rainbow Technologies Inc.	17.38	-0.88	-4.8
REDB	61.00	18.25	Red Brick Systems Inc.	24.25	-0.50	-2.0
SAPE	58.25	29.25	Sapient Corp.	45.50	-1.00	-2.2
SCOC	9.13	5.50	SCO Inc.	6.50	-0.38	-5.5
SDTI	109.00	27.50	Security Dynamics Tech.	80.13	7.88	10.9
SKEY	40.75	13.38	Softkey International Inc.	20.25	-3.50	-14.7
SPCO	4.25	1.19	Software Publishing Corp.	1.31	0.13	10.5
SQAX	39.75	16.00	SQA Inc.	28.00	2.25	8.7
SQTA	19.75	9.19	State of the Art	11.81	0.44	3.8
SSW	81.38	28.25	Sterling Software Inc.	32.88	1.75	5.6
SDRC	37.38	15.00	Struct. Dynamics Research	18.13	-0.63	-3.3
SYBS	39.75	13.50	Sybase Inc.	17.50	-0.25	-1.4
SYMC	29.50	8.75	Symantec Corp.	10.75	-0.38	-3.4
SNPS	50.50	27.50	Synopsys	45.31	2.31	5.4
SSAX	28.38	8.25	System Software Assoc.	11.63	2.75	31.0
SYSF	36.50	4.38	Systemsoft Corp.	27.75	-0.38	-1.3
TRUV	9.63	2.75	Truevision Corp.	3.13	0.19	6.4
VIEW	17.50	8.38	ViewLogic Systems	9.88	0.38	3.9
VMRK	12.63	5.50	VMark Software Inc.	8.88	1.38	18.3
WALK	15.38	6.25	Walker Interactive Systems	13.63	-0.25	-1.8
WALL	27.50	12.25	Wall Data Inc.	14.00	0.75	5.7
WANG	26.13	15.38	Wang Laboratories Inc.	22.88	1.38	6.4
Internet					**OFF 1.41%**	
AOL	71.00	22.38	America On-Line	26.38	0.63	2.4
8BN	48.75	15.63	BBN Corp.	21.00	0.13	0.6
CSRV	35.50	8.63	Compuserve Corp.	10.09	1.47	17.0
EDFY	55.75	14.63	Edify Corp.	14.63	-1.88	-11.4
LCOS	29.25	5.75	Lycos Inc.	11.00	0.50	4.8
NETC	91.50	12.50	Netcom On-Line (L)	15.25	2.00	15.1
NSCP	87.00	34.50	Netscape Comm. Corp.	45.75	-0.75	-1.6
OMKT	42.25	11.50	Open Market Inc.	23.00	0.25	1.1
PSIX	29.00	6.75	PSINet	9.38	-0.63	-6.3
QDEK	39.50	4.75	Quarterdeck Corp. (L)	4.75	-0.81	-14.6
RAPT	39.25	12.75	Raptor Systems	20.75	-2.13	-9.3
SCUR	64.50	9.00	Secure Computing Corp.	11.00	-1.00	-8.3
SPYG	61.00	11.63	Spyglass Inc.	11.63	-0.50	-4.1
YHOO	43.00	15.50	Yahoo! Inc.	19.69	-1.06	-5.1
Semiconductors					**OFF 0.85%**	
AMD	26.00	10.25	Advanced Micro Devices	17.75	0.50	2.9
ADI	30.13	17.00	Analog Devices Inc.	26.75	0.13	0.5
CHPS	21.38	7.88	Chips and Technologies	19.75	0.63	3.3
CRUS	46.00	12.63	Cirrus Logic	18.88	-1.25	-6.2
CY	19.13	9.13	Cypress Semiconductor Corp.	10.75	-0.13	-1.1
CYRX	41.88	11.50	Cyrix	17.63	-1.38	-7.2
INTC	114.13	49.81	Intel Corp.	108.75	1.25	1.2
LSI	49.75	17.00	LSI Logic Corp.	27.00	1.25	4.9
LSCC	40.25	19.75	Lattice Semiconductor	35.50	2.00	6.0
MCRL	25.50	12.00	Micrel Semiconductor Inc.	20.25	-0.75	-3.6
MU	73.63	16.63	Micron Technology	25.75	-2.75	-9.6
MOT	68.63	44.75	Motorola Inc.	45.13	-2.50	-5.2
NSM	25.75	13.00	National Semiconductor	19.13	0.50	2.7
TXN	70.75	40.50	Texas Instruments	48.13	-2.25	-4.5
VLSI	26.25	10.38	VLSI Technology	18.00	0.00	0.0
XLNX	49.00	23.25	Xilinx	34.63	0.63	1.8
ZLG	40.38	14.88	Zilog Inc.	19.75	0.00	0.0
Peripherals and Subsystems					**OFF 0.49%**	
APCC	20.50	7.88	American Power Conversion (H)	20.50	1.00	5.1
ADPT	65.75	35.00	Adaptec Inc.	61.00	-0.38	-0.6
CBEX	10.63	3.00	Cambex Corp.	3.00	-0.13	-4.0
CREAF	12.00	3.50	Creative Technology Ltd.	6.25	0.50	8.7
RACE	12.75	3.63	Data Race Inc.	9.88	-1.44	-12.7
DTM	8.88	4.13	Dataram Corp.	7.94	0.56	7.6
EMC	27.75	13.50	EMC Corp.	26.25	0.13	0.5
EMLX	21.38	6.38	Emulex Corp.	18.00	0.13	0.7
ESCC	29.00	19.00	Evans and Sutherland	21.00	-1.00	-4.5
EXBT	22.75	11.38	Exabyte	13.00	-0.38	-2.8
IISLF	4.13	1.44	Intelligent Info. Systems	1.69	0.13	8.0
IOMG	55.13	3.75	Iomega Corp.	21.13	-1.38	-6.1
IPLS	8.25	1.63	IPL Systems Inc.	1.75	-0.13	-6.7
KMAG	37.00	17.63	Komag Inc.	28.50	0.75	2.7
MTSI	22.25	11.25	Micro Touch Systems Inc.	17.50	0.88	5.3
PEAK	34.75	11.28	Peak Technology Group	11.88	0.25	2.2
PNCL	19.75	4.88	Pinnacle Micro Inc.	6.00	-0.63	-9.4
AQM	6.75	3.25	QMS Inc.	5.75	0.25	4.5
QNTM	26.13	10.88	Quantum Corp.	20.25	-0.50	-2.4
RDUS	4.88	0.94	Radius Inc.	1.44	-0.25	-14.8
SEG	69.00	36.13	Seagate Technology	66.25	0.13	0.2
STK	44.50	22.00	Storage Technology	43.38	-0.38	-0.9
STLC	8.75	1.00	Streamlogic Corp. (L)	1.38	0.13	10.0
TEK	59.75	29.75	Tektronix Inc.	38.88	-1.38	-3.4
WDC	50.25	14.38	Western Digital Corp. (H)	49.50	0.25	0.5
XRX	58.25	39.88	Xerox Corp.	46.38	-0.13	-0.3
Services					**OFF 1.55%**	
AMSY	33.38	17.50	American Mgmt. Systems	32.88	0.75	2.3
ANLY	25.75	13.63	Analysts Int'l	24.50	-0.25	-1.0
AUD	45.75	34.88	Auto Data Processing	41.50	0.13	0.3
BDMI	61.50	24.25	BDM International Inc.	50.75	-0.25	-0.5
CATP	37.25	13.88	Cambridge Tech. Partners	34.13	2.25	7.1
CEN	54.88	36.63	Cerioian Corp.	50.38	0.63	1.3
CDO	33.00	19.88	Comoisco Inc.	29.50	-0.75	-2.5
CHRZ	54.00	15.00	Computer Horizons	31.25	3.38	12.1
CSC	82.75	64.13	Computer Sciences	73.25	-2.13	-2.8
TSK	38.00	15.63	Computer Task Group (H)	38.00	1.25	3.4
CPU	61.75	12.88	CompUSA Inc.	45.50	-11.13	-19.6
CDAT	28.63	11.19	Control Data Systems Inc.	22.88	0.38	1.7
EGGS	13.88	5.00	Egghead Discount Software	5.06	-0.94	-15.6
EDS	63.38	43.88	Electronic Data Systems Corp.	43.88	-3.13	-6.6
INAC	38.50	9.63	Inacom Corp.	32.63	-4.50	-12.1
INEL	11.50	3.50	Intelligent Electronics	8.38	-0.63	-6.9
KEA	48.25	18.25	Keane Inc.	46.38	0.13	0.3
MICA	19.63	7.25	Microage Inc.	19.63	1.75	9.8
PAYX	63.63	26.63	Paychex	57.75	0.00	0.0
PMS	55.50	33.13	Policy Management Sys.	35.25	-0.38	-1.1
REY	28.25	17.63	Reynolds and Reynolds	26.56	0.19	0.7
SCBI	30.50	14.44	SCB Computer Tech. Inc.	20.00	-0.13	-0.6
SEIC	26.38	17.75	SEI Corp.	20.25	0.00	0.0
SMED	72.13	37.38	Shared Medical Systems	45.50	2.25	-4.7
SSPE	30.50	17.00	Software Spectrum Inc.	26.88	-0.13	-0.5
VST	29.75	9.00	VanStar Corp.	24.63	-1.25	-4.8
SNDT	47.50	25.50	Sungard Data Systems	42.75	-0.50	-1.2

KEY: (H) = New annual high reached in period (L) = New annual low reached in period

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Sun/Microsoft

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will press Microsoft on that and other issues.

"I want — no, I *need* — to know how I can get there from here," said Dan Conde, a product manager at Net IQ Corp., an independent software developer in Santa Clara, Calif.

"Ideally, this week Microsoft will tell us exactly how they're moving forward with new Internet initiatives. But I also want a commitment from Redmond [the Washington town where Microsoft is located] to support and evolve the current Windows NT and Windows 95 operating systems, and guarantee me compatibility during my future migrations," Conde said.

Frustration

Six users interviewed by *Computerworld* who deploy Windows 95 and Windows NT Workstation or who plan to migrate to those environments said they are stymied by the lack of interoperability between the two. Current versions of Windows 95 and Windows NT Workstation have different registries.

Windows NT Workstation incorporates several features such as power management and security facilities that are lacking in Windows 95, said Jonathan Roberts, director of product management for Windows 95 at Microsoft. Users who migrate from Windows 95 to Windows NT face the daunting task of having to reinstall all their applications.

"This is the type of thorny issue I'd like to see resolved before I have to deal with it on a large scale," said J. Briscoe Stephens, the advanced scientific systems coordinator at NASA's Marshall Space Flight Center in Huntsville, Ala. About 80% of the flight center's 6,000 users run Windows 95. The agency will have a 50-50 split between Windows NT and Windows 95 in the next 18 months.

Frank Delargy, a senior information systems manager at Polaroid Corp. in Waltham, Mass., said, "Upgrades are tough enough without having to reload all the applications from scratch."

Team spirit

CONTINUED FROM PAGE 1

Thirty percent of 243 companies this year cited the absence of team-based pay as a major factor in team failures, The Hay Group said. That figure is up 20% from last year.

IS organizations are particularly hard-hit because of the project team orientation of most systems and applications work.

"The longer a team is together, the more troubling the pay issues become [because] people begin asking the proverbial question of 'What's in it for me?'" said Steven E. Gross, vice president of The Hay Group.

"People created teams without changing the human resources infrastructure — specifically the pay system," he said.

Xerox Corp. in Rochester, N.Y., has been experimenting with team-based pay for three years. "But I think we've only broken the code in the last year," said Bob Monastero, director of human resources for global IS.

The Xerox formula: Half an IS worker's merit pay increase is determined by managers, and the other half is determined by teammates. Interestingly, the bonuses determined by teammates tend to span a much broader range than those given by managers. "Those closer to the work know better than the manager who's pulling [his] weight," Monastero said.

At Monsanto Co. in St. Louis, where almost all IS work is team-based, management is rolling out a new IS compensation plan. Workers' merit pay will be divided into thirds: a third determined by project team performance, a third by individual performance and a third by the company's overall financial performance.

Merit compensation previously was based largely on business unit performance and subjective criteria.

One way to strike a balance in IS is to base a large chunk of variable pay on the overall goals of a particular project while also making spot awards for individual performance, said Linda Pittenger, The Hay Group's North American director of IS consulting.

Spot awards could be "the latest laptop or going to see Bill Gates speak at Comdex or being on a panel at a conference," Pittenger said. "I call it toys and trinkets for technicians."

Bandwidth could derail intranet plans

CONTINUED FROM PAGE 1

maintain. An aerospace firm ran into problems even before management decided the company needed an intranet.

"We had people throwing up rogue web sites all over the place for specific projects and other efforts without concern for how they would be managed and maintained," recalled Tom Peterson, a staff engineer at Lockheed Martin Idaho Technologies in Idaho Springs, Idaho. "The idea of a corporate intranet was not a controlled concept here."

Intranet monitors

Sheryl Olguin, IS group leader at Harris Corp. in Melbourne, Fla., dodged that problem by helping to create task forces to address the question of how to create an intranet before any rogue sites went up.

Under a plan called InfoBahn that was launched in January, the defense contractor created a series of teams. The groups specialized in areas such as network infrastructure, security, desktop computers and network operating systems, to ensure that the foundation was strong enough to support an intranet.

The first infrastructure weakness that IS managers often face is the need to upgrade older desktop computers so they can run resource-hungry web browsers at acceptable speeds.

"We found [Intel Corp. 286-based PCs] couldn't run browsers and that 386s ran them slowly," Olguin said.

"We're moving to a minimum of 486 66-MHz machines on the desktop. And although you'd think cost would be the biggest issue, the cultural change of people not being used to working over LANs was biggest," she said.

Building an intranet can be a frightening experience

IS managers also have to decide whether the intranet will be used only for human resources-type applications, which generate relatively little traffic, or will involve lines of business functions that would be heavily used, said Tom Plaster, a consultant at Strategic Networks Consulting, Inc. in Rockland, Mass.

For heavily used intranets, users may need to expand shared-Ethernet LAN pipes with higher-bandwidth alternatives that use switches or routers.

"Switching is less expensive, provides much more bandwidth and offers greater flexibility than router-based networks, which makes it the choice for intranets," said Rick Zipes, director of communications and computing services at telecommunications equipment maker Mitel Corp. in Kanata, Ontario.

Bandwidth issues

Once LAN bandwidth problems are solved, IS managers must make sure remote sites have enough capacity to access the intranet across the wide-area network.

Analysts predicted big problems feeding the bandwidth beast.

"There will be an unprecedented content explosion that will clog any communications pipe," Plaster warned. "While most client/server traffic is relatively localized now, browser-to-web server traffic will be highly distributed and travel across wide-area networks."

So where do users start?

Cesar Munoz, an internetworking supervisor at Avery Dennison Corp., an office products giant in Pasadena, Calif., said using diagnostic tools to establish baselines that show bandwidth use, followed by continuous monitoring, can identify trouble before it starts and form a foundation for intranet capacity planning.

Users say frame relay is the way

Frame relay has fast become the wide-area network service of choice for users who want a foundation for their intranets.

The chief benefit of frame-relay service is its flexibility. It is quicker to have a carrier ratchet up the speed of a frame-relay link than to replace private lines that run at only one speed. Plus, a private line is a full-time connection for which users pay a flat fee, even when the connection isn't being used. With frame relay, users pay only for a specified data rate and can burst above that speed as needed because carriers have extra bandwidth.

"With private lines, you can [pay] for lots of wasted bandwidth," said Tom Peterson, a staff engineer at Lockheed Martin Idaho Technologies. "The variable bandwidth of frame relay [makes] that service the way to go for intranets."

Cesar Munoz, an internetworking supervisor at Avery Dennison in Pasadena, Calif., said he sees other benefits.

"You can expect a carrier to take three to five working days to up the speed on your frame-relay pipe, but you're looking at 35 to 40 days to replace a slow private line with a faster one," Munoz said. — *Bob Wallace*

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David Coursey

We're all doomed, and things are just fine

In the binary spirit of the electoral season, this week I'll divide the column into two parts: good news and bad news.

Let's start with the bad news:

Java is still equal parts problem and promise. Remember all those claims Sun Microsystems made about Java being secure? Virus-free? An easy transition for C++ programmers? Well, none of that has worked out, but one thing remains the same: Performance is a significant limiting factor in building Java applications.

The corollary to this is that **Sun still doesn't seem to know how to make money from Java.** The big problem? Wintel's price/performance is improving — and Java's isn't. And there's not much the company can do about this besides what it's already doing: Letting Java-mania distract customers from the problem.

Security is going to become a bigger and bigger problem as time goes on. What would the world be without viruses, packet flooding, cellular cloning and so on? We'll never know — at least not until we start to build new technologies that are secure and ready to face a nasty world when they first arrive.

Novell isn't getting better. Rumors of NetWare's demise aren't true yet, but they may be self-fulfilling prophecies. It's third and long for Big Red. Maybe Oracle will buy them out.

On the bright side

And now the good news:

Lotus Notes isn't dead. Many people seem to have given up on Notes, as if Microsoft Exchange were the answer to all questions known and unknown. I compare Notes and Exchange and almost see complementary applications. Sometimes, messaging is the key; that's where Exchange shines. Other times, replicated data makes an application go, which is why Notes still has a future. In addition, I expect to see Lotus bring out some interesting Internet-based applications.

Apple Computer isn't dead. Buoyed by improved financials, better pricing and the emergence of something resembling a strategy, Apple's condition should continue to improve over the next year. Unless, of course, everything goes completely wrong, which can never be ruled out. But I'm feeling guardedly optimistic — to use the official medical term — about Apple's condition these days.

Trifecta! Unix isn't dead, either. Windows NT is a nice operating system, but you'd be a fool to trust your mission-critical applications to it. That's not me talking; that's the collective wisdom of the user community. That doesn't mean NT won't improve, but between now and 2005, the world needs something comfortable — and Unix will be it.

Forgetting my concerns about Java for a moment, **the Java-based network computer is an interesting option for corporate computing.** People tend to fall into three camps on this issue. One group immediately sees the value of network computer hardware and applications as a replacement for dumb terminals and dedicated PCs. The second group is those who "get it" once the network computer is explained in detail. And then there are the bitter-enders who say their users will give up their PCs when you pry their keyboards from their cold, dead fingers.

This latter group misses the point entirely. People who have a personal relationship with their computer aren't good candidates for the devices. But network computers could have a big future in operations where computers are assigned to functions or tasks rather than individuals.

Coursey, an analyst and consultant, is editor of "coursey.com," an online newsletter available at www.coursey.com. His E-mail address is david@coursey.com.

Charles Babcock

Cray left behind powerful example

Seymour Cray, a giant of a young computer age, is gone. But for me, his memory lingers and will for many years.

He was one of my first scientific/engineering heroes, and — in a younger state of mind — I assumed that for every Seymour Cray that we knew about, the industry was spawning a dozen brilliant pioneers just like him.

Now I'm not so sure.

He was a voracious self-educator, studying everything that might contribute to a new supercomputer design. Over the past few years, he became convinced that the path to future circuits would be found in molecular biology — conducting paths laid down in organic chemical reactions — and he was reading scientific extracts from the field to see what they might yield.

At a time when the PC microprocessor was ascendant, he built custom processors. In an age of commodities, he was still looking for unique, advanced technologies. And in a commercialized age, Cray was a straightforward, synthesizing theorist. His thinking was uncluttered by concerns for profits. He worked from dawn to dark on little more capital than an inimitable faith in himself and his instincts.

Never gave up

Even after his company's assets were auctioned off, Cray still believed he had one more computer design in him. I can still see him on the floor of his Colorado Springs plant on a July day in 1994, talking about his next computer, even though the money was drying up. Cray had a spare elegance, not unlike his machines' designs, no matter what he did.

During that 1994 visit, I was fascinated by the Cray-4, then in prototype, with its bubbling liquid coolant. But Cray ignored it, describing a generation not far off when a supercomputer would be no bigger than a basketball. For a moment, I thought I could see it there in his thin, outstretched hands, with millions of gallium arsenide transistors awash in liquid fluorocarbons.

He liked the notion of a supercomputer no larger than the human brain and having almost as many connections, a development he thought would come to pass with the advent of molecular circuits. He created an image of it for you as he talked about it. He not only thought in terms of building microscopic circuits, but also of what the design of the total system should look like when it was done.

Instead of being the example that preceded many others, Cray seemed to me more and more like one of a kind, an archetype and giant forerunner to the lesser notables who would end up driving the industry. He was dedicated and self-sufficient. The last thing he needed was a soapbox; I can't imagine him writing a book called *Only the Paranoid Survive* or focusing his company on some industry nemesis.

To the end, he put his personal resources on the line: He was willing to expend much of his fortune trying to keep his last company, Cray Computer, Inc., alive.

Seymour Cray died Oct. 5 of head injuries he sustained in a car accident in Colorado Springs that was not his fault. He was 71. He had been through so many transitions in his career that some of us found it hard to believe, after hearing about the accident, that he wouldn't get up from his hospital bed, find the nearest drawing board and just start over again.

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a.t.cw

Go West, drop out

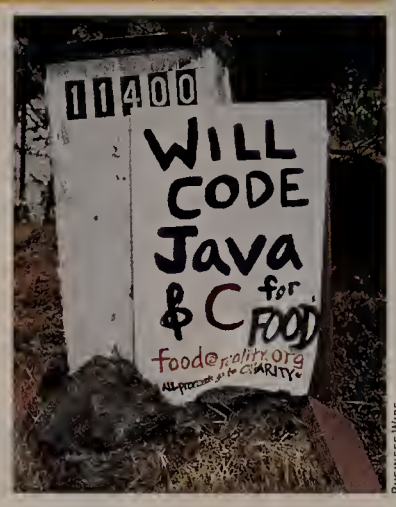
Close reading of the Forbes 400 list of the world's richest people found that at least five of the computer industry's moneybags were college dropouts

	Bill Gates	Paul Allen	Larry Ellison	Michael Dell	Steve Jobs
	Microsoft	Microsoft	Oracle	Dell Computer	Apple and Next
1995 net worth	$18.5B	$7.5B	$6B	$1.1B	$470M

Source: *Forbes* magazine, Oct. 14 (www.forbes.com)

News to ponder

A sign of the times? It must have been a programmer desperate for work who posted this sign in a residential Palo Alto, Calif., neighborhood at the northern edge of Silicon Valley. A SunSoft engineer was driving along the highway and stopped to take this picture, a SunSoft spokeswoman explained.



Those lightweight and unintentionally sexy hospital "scrubs" worn in the operating room — and showcased on prime-time TV — are disappearing fast because of employee pilferage. Vanderbilt University Medical Center in Nashville, for instance, spent close to $150,000 last year to replace stolen scrubs. So the center has installed a scrubs-dispensing machine that requires a debit card and personal identification number, *ID Systems* magazine reported.

As if electronic-mail administrators didn't have enough trouble, corporate employees are clogging the E-mail pipes by sending colleagues a bandwidth-hogging screen saver called "Hey, Macaroni!" The extremely popular screen saver features a quintet of dancing noodles in a spoof of the Macarena dance craze. The 1M-byte freeware can be downloaded from Rhode Island Soft Systems' Web site (www.risoftsystems.com). Macaroni mania has already crashed the E-mail server at a financial services firm in Boston, according to an on-site consultant.

"There've been a lot of meltdowns due to this," said Eric Robichaud, CEO at Rhode Island Soft Systems. "Our Web site was crippled for several days by all of the downloads." More than 250,000 copies have been downloaded from that site alone. — *Mitch Betts*

Here's a computer monitor you could pack into a briefcase (though it isn't clear why you would want to). The 15-in. LCD flat-panel monitor from Sceptre Technologies in City of Industry, Calif., weighs less than 8 pounds, is less than 2 in. thick and is radiation-free.

The flat monitor saves a lot of desktop space and can be mounted on a wall. It costs $4,695.

Larry Merrick, vice president of MIS administration at Encyclopaedia Britannica in Chicago, said he mounted one in the corporate boardroom to show off the firm's online service.

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Inside Lines

British Telecom in talks to buy MCI

British Telecom was is in negotiations late Friday to buy MCI Communications Corp. for as much as $22 billion. Combined, the companies would have market capital of $55 billion, compared with AT&T Corp.'s $56 billion. The merger, which would create one of the world's largest telephone companies, would face intense regulatory scrunity, observers say. MCI, based in Washington, has annual revenue of more than $15 billion.

The customer isn't always right

According to the Japanese newspaper *Shukan Asahi*, many customers begin their conversations with help-line representatives by screaming "Bakayaro!" (you bloody idiot!). But as it turns out, sometimes those complaining the loudest are doing things such as holding their mouse with the cord behind it and then complaining when the cursor moves in the wrong direction.

DEC to bring hot air to Comdex

The New York Yankees may have controlled the field during the World Series, but Digital controlled the skies. AltaVista, Digital's Internet division, is working overtime to develop an independent identity, and that includes leasing a blimp. The AltaVista blimp will appear over Comdex in Las Vegas in two weeks before it heads to Silicon Valley.

One way to cut year 2000 costs

With year 2000 costs escalating, it might be reassuring to hear that the Association of Information Technology Professionals (AITP) is holding a year 2000 conference in New York Dec. 6 and 7 that is free to the first 204 registrants. Call AITP at (847) 825-8124.

Ghoulish Web site

To settle some of those "Dead or Alive?" arguments, try the Dead People Server at www.scarletfire.com/dps. Buddy Ebsen, a.k.a. Jed Clampett, or Pugsly Addams? Both alive! The site also has links to the Los Angeles Coroner's Office and the Find-a-grave locator.

Netscape a go-go

Microsoft and Netscape held dueling developer shows last month. After Microsoft's soiree opened last week, Netscape blasted reporters with a mass E-mailing repeating its announcements from the prior two weeks. But unlike Netscape's, Microsoft's after-hours entertainment didn't include female go-go dancers in glow-in-the-dark minidresses gyrating in cages. Score one for Redmond.

E-mail to God

An Israeli company called Virtual Jerusalem now delivers electronic mail to God. The free service entails collecting prayers on a Web page (www.virtual.co.il), printing them and then placing them within crevices in Jerusalem's Wailing Wall, where, according to Jewish tradition, God can retrieve them. During the Hanukkah holiday, look for a live video feed as well.

Matsushita Electric Industrial Co. and Panasonic Corp. were set to launch the Internet PC earlier this month. It featured a Web browser developed by Panasonic. In the interests of making the system user-friendly, the two firms licensed the cartoon character Woody Woodpecker as its mascot. But at the last minute, executives were forced to cancel the launch and the multimillion-dollar ad campaign, according to The San Jose Mercury News. *It seems the Japanese marketers, unfamiliar with American idioms, had chosen the slogan: "Touch Woody the Internet pecker." No word yet on a new launch date or a new slogan. If you have any news to share, contact news editor Patricia Keefe at (508) 820-8183.*

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